Lucent Technologies
Bell Labs Innovations

AnyMedia® Element Manager - 24 Channel (AEM)

Release 1.7

User Service Manual

363-211-454
Version 1.00
(06.00)

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About this document

1 Overview

Purpose

This user service manual (USM) provides the following information for Lucent Technologies *AnyMedia*® Element Manager - 24 Channel (AEM) Release 1.7:

- A product overview and a functional product description
- system turn-up procedures and system modifications
- user management
- configuration management
- fault management and maintenance
- performance monitoring.

The purpose of the USM is to provide the provisioning personnel with all information necessary to provision an AnyMedia Access System via the AEM.

The USM is a network oriented manual and will be shipped to all sites where an AEM is available. It provides the provisioning operator(s) with necessary information to configure or re-configure network elements after local installation.

The philosophy behind the provisioning of network elements within a network is that the network is already installed, configured and service has been provided to the network after first installation and that re-configuration of the NE is necessary. Provisioning takes place from the AEM, located in one or more central offices.

2 Intended audience

The USM is intended for personnel who take care of deploying NEs by carrying out all provisioning activities of the NEs using the AEM.

Tasks to be performed by the Provisioning personnel are:

- collect information of provisioning data (e.g. check shelf layout, units list)
- put ports in-service and out-service
- assign timeslots (Cross Connections)
- download and upload the provisioning data to and from the NEs
- testing of assigned ports.
- recognize, interpret, analyze or correct failures, caused by provisioning data that is configured incorrectly.

The personnel should at least have the following education level:

- computer knowledge (e.g. windows applications and/or SUN applications)
- telecommunication network knowledge.

3 How to use this document

The guide is divided into a number of sections (subjects), clearly separated by numbered tabs. The front pages of the guide also describe this division, and list the titles of the subjects together with the corresponding tab numbers. Through this readers can quickly select the subject of their interests and needs.

- **How are we doing**
  A comment form so readers can give feedback to improve the next revision of the document.
- **Table of contents, list of figures, list of tables**
- **Overview**
  Defines the purpose of the document and the intended audience. Also included are topics about the conventions used in the document, related documentation, how to order documents, and how to comment on this document.
- **Chapter 1, Functional Description**
  Contains a short overview over the system, its features and capabilities.
- **Chapter 2, Software Installation**
  Describes the standard procedure to install the AEM R1.7 server package (server applications) and client package (client applications).
- **Chapter 3, System Management**
  Provides the system administrator with all information necessary to administer the AEM so that it can be used as a centralized management system.
- **Chapter 4, User Management**
  Describes all actions necessary to create/modify/delete users, user groups and domains and the handling of controlled objects.
- **Chapter 5, NE management/Equipment configuration**
  Describes the database and software management, the default system configuration parameters and the provisioning and service activation, the inventory management, clock synchronization management and protection switching.
- **Chapter 6, Service provisioning**
  Describes all actions necessary for provisioning both telephony and data services.
- **Chapter 7, Fault Management/Maintenance**
  Describes alarms and events, how to use the Alarm Viewer, how to perform tests and trouble clearing procedures.
- **Chapter 8, Performance monitoring**
  Describes the display of performance monitoring data and traffic measurements counts.
- **Appendix A**
  Describes the Data Communications Network (DCN) configurations.
- **Appendix B**
  Provides information about the configuration parameters.

- **Appendix C**
  Describes the TL1 Northbound Interface.
- **Abbreviations and Acronyms**
  Lists all abbreviations and acronyms used in this manual.
- **Glossary**
  Defines special terms used in this manual.
- **Index**
  Alphabetical index to quickly search for paragraphs in the manual which provide more information on a certain keyword.

4 Conventions used

The following are terms used in this USM that may have a different meaning than the general or common use of the term.

- In the AEM, the term *access* means that the system provides the primary service interface for the customer to enter the network.
- The term *plug-in* is generally used for circuit pack units (COMDAC, CIU, IO-DS1, CTU and application packs (APs)) which have pre-designated slots with the capability to plug-in the circuit pack.

Numbering

Each fascicle can be identified by its number and contains a chapter which is numbered accordingly (e.g. Chapter 2 is contained in Fascicle 2).

The page, figure and table numbering begins with “1” in every chapter. To be able to identify them easily, these numbers are prefixed with the fascicle number. For example, Figure 2-3 designates the third figure in Fascicle 2.

Cross-references

Cross-reference conventions are identical with those used for numbering, i.e. the first number in cross-references refers to the corresponding fascicle.

Keyword blocks

To facilitate the location of specific text passages, the guide contains so-called keyword blocks. These are placed to the left of the main text and contain either a keyword or a word which indicates the contents of a paragraph or group of paragraphs.

Abbreviations

Each abbreviation used in this guide is listed in fascicle AB (“Abbreviations”) of the hardcopy version unless it can be assumed that the reader is familiar with this abbreviation.

Commands

Commands and messages are displayed in **`constant-width`** font (e.g., **`sysdef | grep SEMMNU`**).

Trademarks

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Typographical conventions

The following table gives examples of the typographical conventions used in this chapter.

Table 0-5 Typographical conventions

Object	Example	Meaning
Keyboard	**`Return`** or **`A`**	**`Return`** or **`A`** key on the keyboard
	`Shift-Ctrl-B`	**`Shift`**, **`Ctrl`** and **`B`** key pressed simultaneously
	`Esc A B`	**`Esc`**, **`A`** and **`B`** key pressed one after the other
Pushbutton	***Apply***	***Apply*** pushbutton in a window
Menu	***File -> Exit***	Menu option ***Exit*** in ***File*** menu
Objects in windows	**Date**	Designates the object **Date** in a window (e.g. text field, check box, spin box etc.)

6 General safety information

This section lists the safety information needed for the *AnyMedia* Access System for system turn-up after installation has been completed, operating, provisioning and maintaining the system.

6.1 General notes on safety

This system has been developed in line with the present state-of-the-art and fulfils the current national and international safety requirements. It is provided with a high degree of operational safety resulting from many years of development experience and continuous stringent quality checks in our company.

The system is safe in normal operation. There are, however, some potential sources of danger that cannot be completely eliminated. In particular, these arise during the

- opening of housings or equipment covers
- manipulation of any kind within the equipment, even if it has been disconnected from the power supply
- disconnection of optical or electrical connections

through possible contact with

- live parts
- laser light

- hot surfaces
- sharp edges, or
- devices sensitive to electrostatic discharge.

6.2 General safety requirements

In order to keep the technically unavoidable residual risk to a minimum, it is imperative to observe the following rules:

- **Installation, configuration and disassembly must be carried out only by expert personnel and with reference to the respective documentation.**
  Due to the complexity of the unit/system, the personnel requires special training.
- **The unit/system must be operated by expert and authorized users only.**
  The user must operate the unit/system only after having read and understood the chapter on safety and the parts of the documentation relevant to operation. For complex systems, additional training is recommended. Any obligatory training for operating and service personnel must be carried out and documented.
- **Any conversions or changes to the system or parts of the system (including the software) must be carried out by qualified Lucent Technologies personnel or by expert personnel authorized by Lucent Technologies.**
  All changes carried out by other persons lead to a complete exemption from liability.
  No components/spare parts must be used other than those recommended by the manufacturer and those listed in the procurement documents.
- **The unit/system must not be operated unless it is in perfect working order.**
  Any faults and errors that might affect safety must be reported immediately by the user to a person in responsibility.
- **The equipment must be supplied with Safety Extra-Low Voltage (SELV) of -48 V and the positive terminal of this source must be correctly connected to the protective earth.**
  Never connect to –60 V.
- **The unit/system must be operated only with the connections and under the environmental conditions as described in the documentation.**
- **The removal or disabling of safety facilities, the clearing of faults and errors, and the maintenance of the equipment must be carried out by specially qualified personnel *only*.**
  The respective parts of the documentation must be strictly observed.
  The documentation must also be consulted during the selection of measuring and test equipment.

- **Transport, storage and operation of the unit/system must be under the permissible conditions only.**
  See accompanying documentation and information on the unit/system.
- **Calibrations, special tests after repairs and regular safety checks must be carried out, documented and archived**.
- **Only use tested and virus-free diskettes.**
- **Do not place the shelves on an unstable cart, stand, or table.**
  The product may fall causing serious damage to the equipment.
- **Never push objects of any kind into this product through cabinet slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock. Never spill liquid of any kind on the product.**

6.2.1 Safety symbols and labels

All safety instructions have a uniform appearance. They include a *signal word* that classifies the danger and a *text block* that contains descriptions of the type and cause of the danger, the consequences of ignoring the safety instruction and the measures that can be taken to minimize the danger. In some safety instructions, a *warning symbol* is placed underneath the signal word.

Classification

There are five classes of safety instructions: “Danger”, “Warning”, “Caution”, “Important” and “Notice”. The classification is shown in the following table.

DANGER	Serious injury is definite or likely.
WARNING	Serious injury is possible.
CAUTION	Minor injury is definite, likely or possible, or material damage to the product or in the product environment is definite or likely.
IMPORTANT	Material damage to the product or in the product environment is possible.
NOTICE	A fault, i.e. considerable impairment to operation, will be caused or may be caused.

7 Related documentation

Document List The following is related documentation for the AEM and for additional components:

Table 1 List of documents

Component	Manual type	Comcode	CIC ordering number[a]
AnyMedia Access System	Applications, Planning, and Ordering Guide (APOG)	108298639	363-211-101
AnyMedia Access System	Installation Manual (IM)	108298654	363-211-102
AnyMedia Access System	Commands and Procedures	108361155	363-211-103
A*nyMedia* Access System	User Service Manual (USM) Vol. 2 (Broadband Services) (Issue 2 for R1.4)	108543380	363-211-115
AEM R1.7	Functional Description		363-211-453

a For the ordering address see Chapter 8, How to order this document.

7.1 Print copy (hard copy)

Document packaging and format All listed documents are available in print.

7.2 CD-ROM

The User Service Manual and the Functional Description are available in PDF format on CD-ROM and an Adobe Acrobat Reader [1] is provided to view them.

Table 2 Customer documentation on CD-ROM

Component	CD-ROM	CIC Ordering number
AEM R 1.7	Customer Documentation on CD-ROM includes: – User Service Manual (USM) – Functional Description.	363-211-455[a]

a For the ordering address see Chapter 8, How to order this document.

1 *Acrobat Reader* is a registered trademark of Adobe Systems Incorporated.

8 How to order this document

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9 How to comment on this document

Document comment procedure

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Functional description

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Functional description

1

1.1 About this subject

Scope

This chapter describes the *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7. This release covers the following NE releases:

- narrowband releases R1.2.1, R1.2.2 and R1.7.0
- broadband releases R1.1.2 and R1.4.

NOTE:
For the AEM the terms telephony/data are used instead of narrowband/broadband.

Purpose

This chapter provides an overview of the AEM and tries to give an insight into the functioning of the AEM by providing detailed information on the AEM features mentioned.

Contents

The following AEM subjects are described:

- basic functionality
- management features
- system and software architecture
- hardware and software platform
- interfaces
- applications.

1.2 Introduction

General

The AEM is part of a telecommunication management network (TMN). It represents the element management layer and fulfills the tasks of the ISO (*International Organisation for Standardization*) functional areas (see Chapter 1.2.2, page 1-3).

Benefits

This provides some benefits for the operator:

- better control over revenue generating services by local and centralized management
- reduced time and effort for provisioning tasks
- fast and efficient fault detection and isolation
- prevention of unauthorized access by appropriate security mechanisms
- reduction of operator mistakes by easy-to-use Graphical User Interface (GUI)
- integration with higher management levels for network, service and business purposes.

1.2.1 Main functions

The AEM provides the following main characteristics/functions:

- support of all *AnyMedia* Access Systems features (telephony and data)
- equipment overview
- telephony and data service provisioning
- common alarm handling for all network elements (NEs)
- test management
- data performance monitoring
- report, log, backup and restore functions
- southband interfaces:
  - TL1 NE access via TCP/IP for telephony agents based on data communication network (DCN)
  - SNMP NE access via UDP/IP for data agents based on DCN
- user security handling (user profiles, NE domains)
- online help
- multi user access
- northbound interfaces
  - TL1 pass through interface for telephony alarm collection and COBRA interface
  - CORBA interface (i.e. AEM CORBA IDLs are published so that a network management system can access to them directly or by means of a mediation device).

1.2.2 ISO functional areas

1.2.2.1 Configuration management

The configuration management supports the complete range of graphical functions to provision and maintain the following NE releases: R1.2.2 NB, R1.2.3 NB, R1.7.0 NB, R1.1.2 BB and R1.4BB. Network topologies, shelf views and self-explaining menus are navigating the operator to configure the following services:

- telephony
  - POTS
  - ISDN.
- data
  - ATM virtual paths
  - and ATM virtual channel connections carried over ADSL lines.

The following main functionalities are offered (for more detail see Chapter 1.3.1.1, page 1-8):

- inventory management
- equipment provisioning and maintenance (subshelves, packs, ports)
- narrowband and data service provisioning
- clock synchronization
- system/equipment/service status
- software download
- NE database backup and restore
- system date/time synchronization.

1.2.2.2 Fault management

The fault management supports the operator in detecting, displaying, localizing and logging any faults occurring in the managed network. The following main functionalities are offered (for more detail see Chapter 1.3.1.1, page 1-8):

- handling of alarm severity (critical, major, minor, warning)
- receiving of autonomous alarm messages
- retrieving of alarms per NE, pack, application pack
- retrieving of alarm and event logs from NE
- initialization of tests for fault analysis purposes
- filters to display pre-selected alarm types only.

1.2.2.3 Performance management

The performance management provides facilities for retrieving, storing and printing of the NE performance and data to ensure the quality of service.

1.2.2.4 Security management

The security management functions which are based on UNIX®[1] control the access to the AEM and to the managed NEs. The following main functionalities are offered (for more detail see Chapter 1.3.1.1, page 1-8):

- AEM user administration
- AEM user security profile
- No additional NE login for current AEM user
- AEM access via login name and password[2]
- Inactivity user session time-out[2].

1.2.3 Applications

The AEM provides 6 applications which give access to the management functionality as described in Chapter 1.2.2, page 1-3. The following applications are available:

- System administration
- User administration and profiling
- Log management
- Alarm management
- NEs & Groups management.

Each application is composed by one or more tasks. The default user group assignment to the individual applications/tasks is described in Chapter 1.4.4, page 1-30.

1 UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.

2 provided by the OS System (SUN Solaris)

1.2.4 System working modes

The AEM can work in the following two modes:

- stand-alone Mode
- integrated management mode.

These modes are not mutually exclusive, i.e. the AEM is always able to perform the element management tasks even while it is connected to any higher management system (OS) connected via northbound interface.

Stand-alone mode

In the stand-alone mode the AEM performs the whole management of the NEs on its own. The user is able to perform all management tasks via the GUI.

Figure 1-1 shows the system architecture in the stand-alone mode.

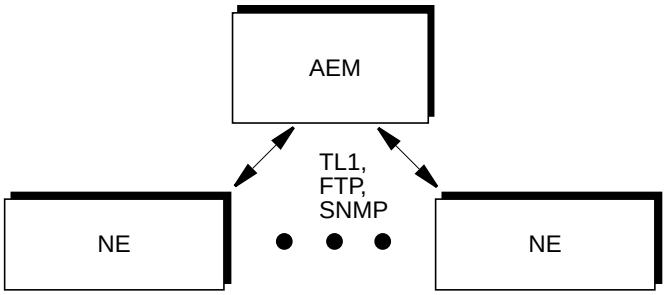

Figure 1-1 Stand-alone Mode

Integrated management mode

In the integrated management mode the AEM works as an integral part of the customer's management network, providing higher management systems (OSs) with services to manage NEs in their domains.

The AEM allows other OSs to pass provisioning, testing or fault information to and from the NEs, e.g. a fault management surveillance system can collect fault data using the pass-through interface.

Figure 1-2 shows the system architecture of the integrated management mode.

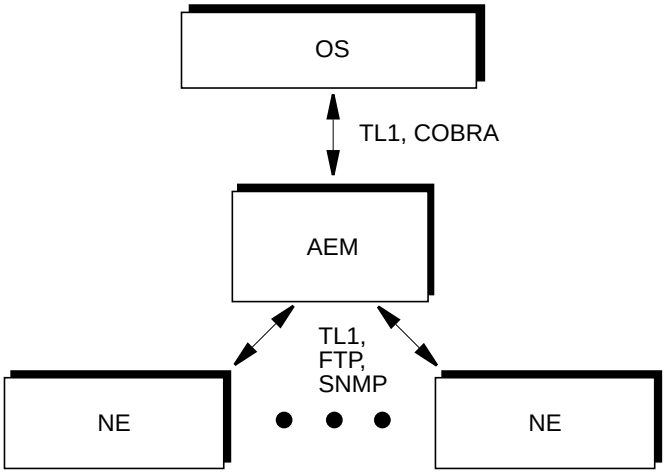

Figure 1-2 Integrated Management Mode

The complete system and software architecture of the AEM is described in Chapter 1.3, page 1-7.

1.2.5 Performance, reliability and availability

The AEM fulfils the following features:

- 30 simultaneous users
- Support of 600 NEs in the server configuration
- Database re-synchronization

  The AEM can re-synchronize its database with the 600 NE data bases within 24 hours.
- Priority of synchronization

  The AEM provides a mechanism to define the order in which the NEs will be synchronized.
- Maximum software download time

  It is possible to perform software download actions on 80 NEs in 6 hours.
- Scaling

  The AEM provides a scaling capability which defines the most suitable cost effective configuration depending on the number of NEs and number of users to be supported.

1.3 System and software architecture

1.3.1 Functional groups

The AEM software architecture is built with a number of components that can be grouped in the following distinct functional groups:

1. **NE Management**
   (Equipment Management, Service Management, Alarm Management, Test Management, Performance Management)
2. **General Components**
   (Components for Operation, Administration and Maintenance (OAM); Common Servers)
3. **Software Platform**
   (Software bus, Repository, third party libraries)
4. **Graphical User Interface (GUI)**
5. **Northbound Interface**
6. **Southbound Interface**.

Figure 1-3 shows the six functional groups. The shadowed blocks are part of the AEM.

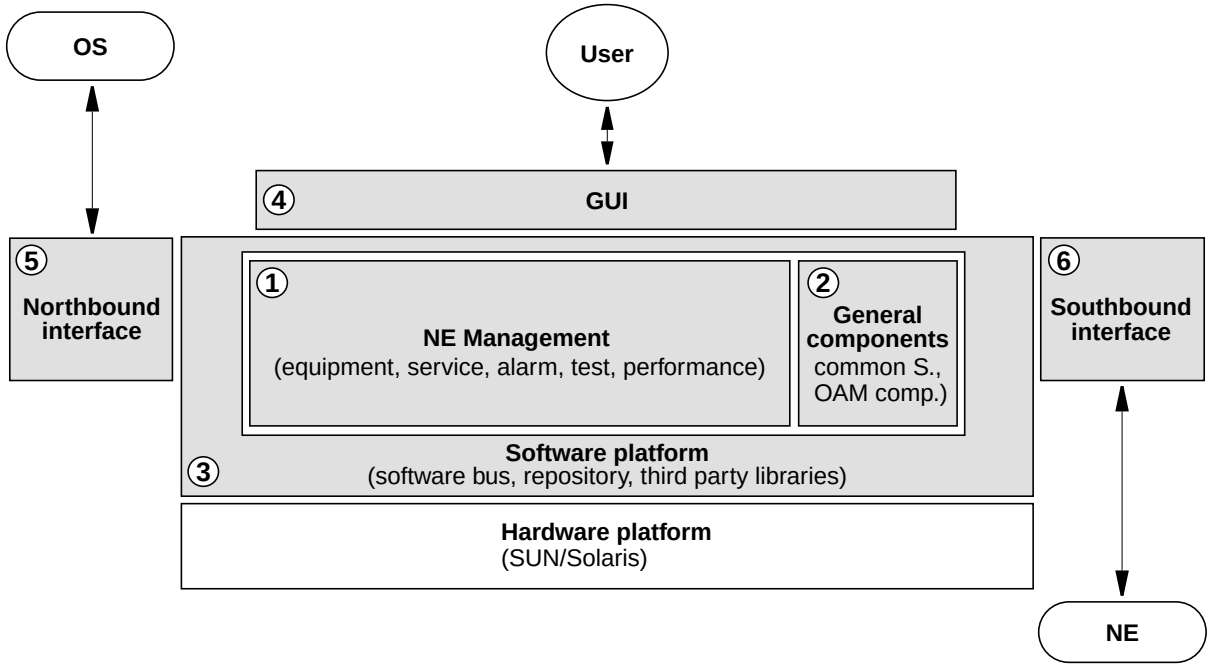

Figure 1-3 AEM functional groups

1.3.1.1 NE Management

The NE management functionality is distributed in 5 areas. These are: Equipment management, Service management, Alarm management, Performance management and Test management.

Equipment management

The equipment management provides the following functionality/features:

- Scrolling list of NEs

  The NEs are displayed in a list covered in a single window called *Network Element Browser*, where the NEs and their components can be handled like files in a file browser.

- NE provisioning

  The operator can create a new NE manageable for the AEM view. The operator must enter the specific configuration data for the new NE such as IP address, NE Name, NE user-id and password.

- Software download to a single NE

  Provides a storage medium for maintaining a copy of the software and a mechanism for downloading that software to an NE (for both data and telephony agents).

- Software download to multiple NEs

  Download of new software to multiple NEs on an individual connection basis.

- NE non-volatile data storage restoration

  Restores NE non-volatile data storage upon user request. Provides a storage medium for maintaining a copy of the NVDS for backup and restore purposes (for both telephony and data agents).

- Maintain a local copy of NE inventory

  The AEM maintains a local copy of specific hardware identifiers and software version identifiers. This local copy accepts automatic inventory notifications. This information can be used for display and report functions in case of loss of communication with the supported NE. The hardware identifiers include all packs.

- Maintain a local copy of NE provisioning configuration data

  The AEM maintains a local copy of all cross-connection and parameter settings for each NE. This information can be used for display and report functions in case of loss of communication with the supported NE.

- Maintain NE software copies

  The system keeps a copy of the versions of the NE software running in the NEs managed by the AEM. Generally, only one version of NE software per NE type is used by all the NEs in a network but the AEM must have the capacity to manage two software versions during the upgrade period.

- AEM database synchronization

  Automatic update of the AEM database records based on NE database changes.

- Internal audits (only applicable to data agents)

  The AEM performs periodic internal audits to ensure the integrity of the configuration data with the NE.

- Protection control

  The management system provides a facility to allow the user to switch operation of one unit in an NE to a standby unit, if that unit exists.

- Telephony equipment protection

  The AEM allows the user to provision the equipment information for the protection scheme. Also the user can force protection switching.

  NB R1.2 and subsequent releases:

  — COMDAC - simplex/duplex

  — IO-DS1.

- NE timing synchronization

  The AEM supports the user to configure the NE synchronization clock sources.

- NE date and time

  The AEM allows the user to set and retrieve the date and time of the NE and allows to automatically configure NEs with AEM date and time.

- Subshelf management (IAT)

- Support of NE standby configuration

  The AEM supports the NE standby configuration via cut-through interface. The standby configuration is used to select the ISDN mode of operation as well as to configure the country code.

- NE disaster recovery from the AEM

  The AEM is able to reconstruct its NE database by polling the NEs for information and from internally maintained backup copies of data.

- Fiber reach support

  The AEM supports the fiber reach by providing alarm information.

- Fibre reach management

  The AEM is able to launch the DDM 2000 element manager in order to perform DDM 2000 provisioning tasks.

Data equipment management functions

The data equipment management provides the following functions:

- Configure specific equipment data

  — Circuit pack provisioning/configuration

  — AFM management (e.g. reset, etc.)

- — ADSL pack management (e.g. change of administrative state, reset, etc.)
- — DS3/E3 feeder management
- — ADSL drop configuration
- — Date and time management
- — Timing synchronization provisioning (for this release no timing synchronization is made since local timing is the only mode supported)
- — Enable/Disable traps generation.

- Maintain a local copy of configuration data in the AFM's NVDS
  - — Initializing the local copy (i.e. by doing an initial configuration upload)
  - — Synchronizing the local copy with the equipment data maintained by the AFM (i.e. by using audits, traps and responses from operations). Note that local copy may not be synchronized because not all the configuration changes provoke traps.
- AFM memory administration

  Management of non-volatile data storage (NVDS) of the AFM. Provides a storage medium for maintaining a copy of the NVDS for backup and restore purposes.
- AFM software management

  Management of non-volatile program storage (NVPS) of the AFM: software download, software validation & activation etc.
- Subshelf management (NE R1.4)
  - — Subshelf creation
  - — Subshelf configuration and cross-connection
  - — Subshelf deletion.
- ADSL profiles management

  The AEM allows to create, delete or change of the performance monitoring and transmission profiles related to ADSL ports.
- Obtain operational state and others status attributes of different entities (i. e. packs, ports, subshelves (NE R1.4) on user demand.

Service management

The Service Management provides the following functionality/features:

- NE service status

  Provides the aliveness status of the individual NEs providing a customer's service across all NEs under the AEM's control.

- Network interfaces and subscriber service provisioning and activation

  The AEM supports all provisioning functions related to 2-Mbps network interfaces and subscriber services. Provisioning contains the creation, deletion and parameter setting/modification of the different subscriber services. The AEM service activation enables and disables the service.

  2-Mbps network services:

  — TR-303

  — TR-08

  — INA.

  Telephony subscriber services:

  — analogue telephone (POTS)

  — ISDN.

Data service management functions

The data service management provides the following functions:

- Configuration of ATM layer functions:
  - — shelf virtual path identifier (Shelf VPI)
  - — OAM&P virtual path/virtual channel (i.e. configuration of ATM embedded management channel).
- Management of ATM virtual path services:
  - — creating and deleting virtual path services (i.e. by means of creating and deleting virtual path links and virtual path cross-connections)
  - — changing the administrative state of a virtual path cross-connection
  - — obtaining the operational state of a virtual path cross-connection.
- Management of ATM virtual channel services:
  - — creating and deleting virtual channel services (i.e. by means of creating and deleting virtual channel links and virtual channel cross-connections)
  - — changing the administrative state of a virtual channel cross-connection.

Alarm management

The Alarm Management provides the following functionality/features:

- Integrated display of all the alarms

  The AEM provides a common window (alarm viewer) to show all alarms reported by the managed NEs or generated by the management system itself. The display shows all the information pertaining to the alarm, including alarm type, severity, service affecting indication, date/time of occurrence and clearing.

- Alarm display filters

  It is possible to filter the items shown in the alarm viewer, for instance, to see only the critical alarms.

- Alarm notification to user

  The user is informed by visual alerts when a new alarm has been reported to the AEM.

- Alarm correlation

  Alarms coming from the same NE point through NB and BB agents (i.e the same alarm is reported via both controller cards) are correlated into one single alarm.

- Clearing of alarms

  Alarms in the management system will automatically be cleared when the faults are removed at the source (such as in the NEs or in the platform). Some platform alarms can be cleared by the user. The alarm information will contain the date and time of alarm clearance.

- Acknowledged alarms

  The operator can acknowledge a raised alarm - alarm still active but being investigated.

- Alarm colors

  The management system provides a color scheme based on alarm severities.

- Enable/Disable of autonomous alarms on an NE basis

- Fault localization

  Provides fault localization across all NEs under the AEM control. The COMDAC LEDs show the highest severity alarm for the system. The individual pack unit LEDs show the highest severity alarm for the pack unit. Fault localization is performed at AP level.

- NE alarm log handling

  The AEM is able to retrieve the NE alarm log via the cut-through interface.

- Customized alarm filters and views

  It is possible to filter the alarm records for one or for a list of NEs. The items to be displayed can be sorted in ascending or descending order.

- NE alarm cut-off functionality via GUI

- Alarm audits data application

  The system performs periodic (automatic) and on-demand audits on the NE to ensure integrity of the alarm data.

Performance management

The Performance Management provides the following functionality/features:

- Handling of performance records

  Records can be displayed, printed and stored in a user-defined file.

- OSs retrieval of data performance data

  The AEM provides a mechanism for other OSs to retrieve data performance data.

- Displaying, printing and storage of the TCA records
- Retrieve performance counter thresholds (only applicable to BB agents)

  The user can request the NE to report the assignment of the performance counter thresholds.
- Set/Modify performance counter thresholds (only applicable to BB agents)

  The user can set/modify the performance counter thresholds.
- Retrieve the performance data after selecting the record type (15 minutes or 24 hour) - (only applicable to BB agents)
- Traffic monitoring (only applicable to BB agents)

  The AEM provides the ability to display traffic monitoring data.

Data performance management functions

The data performance management provides the following functions:

- Collect/display ATM layer traffic counters:
  - current 15 minutes and previous 15 minutes.
- Collect/display ADSL port performance counters
  - current 15 minutes, previous 15 minutes, current day and previous day.
- Collect/display DS3 feeder performance counters
  - current 15 minutes, previous 15 minutes (up to 96 previous intervals) and total day.
- Management of performance features
  - enabling/disabling generation of feeder PM data
- clearing of ATM, ADSL and DS3/E3 PM counters

Test management

The Test Management provides the following functionality/features:

- Port test

  It is possible to request a test for a particular port on a specific application pack.
- AP card test

  It is possible to start a series of self-diagnostic routines for all port circuits on a specified Application Pack plus its common circuitry.
- Standby card test scheduling (via cut-through)

  It is possible to schedule a test to perform a COMDAC side switch or off-line diagnostic for the standby COMDAC or the protection.
- Built-in self-test

  Each NE performs a built-in self-test of plug-in circuit packs periodically.
- Loopback test on the feeder side

  It is possible to set or clear a loopback on particular feeders.

- Testing on daisy chained NEs

  The AEM is able to perform tests on any line of any NE sharing one TAP100.

Data test management

- The data test management provides the following tests:
  - ADSL port BIST tests
  - ADSL port corrupted CRC tests
  - administration of the set of tests stored in the AFM.

1.3.1.2 General components

The components of this group do not have or require any knowledge of the NEs the AEM is managing. They provide a platform on which the other AEM components can operate and isolate them from the underlying customer platform.

OAM components

The OAM components provide operation, administration, maintenance and security functionality. This is based on third party-tools (i.e. orbix) and a set of specific applications.

The OAM components provide the following functionality/features:

1. **Operation/Administration/Maintenance**

- Standard reports

  The system allows the user to generate a set of predefined reports from the information kept by the AEM. The reports cover the following areas:
  - alarms
  - equipment configuration
  - service provisioning
  - NE inventory
  - performance.

  The reports are available for displaying, printing and saving in a postscript file.

- Standard reports on multiple NEs

  These reports are applicable to one NE as well as to a list of NEs.

- Backup and restore of system relevant data

  Relevant data includes all information necessary to restore the situation in case of an AEM crash.

- AEM software upgrades

  Provides an established release cycle for AEM software upgrades in a way that minimizes incompatibility with NE software releases, and allows for upgrades to provide for OS compatibility. This upgrade does not affect the services provided by NEs.

- Log administration

  The logs are capable of being printed and visualized. The system limits the size of the system logs. It is possible to make backups of the logs and to remove them from the system. There are logs for:

  — Actions

    Contains all the information on actions performed by users or the AEM and which imply changes in the AEM configuration, equipment (NE) configuration, service and subscriber configuration, access to the AEM, print reports and backup and restore, i.e. all operations triggered by the user or the AEM and all subsequent actions. The results of operations are also logged in the actions log.

  — System Internal Events

    Contains all internal events or actions which report unusual changes in the configuration and state of the AEM or indicate errors that occurred in the AEM.

  — Autonomous Reports

    Contains all information useful for the equipment supplier about alarms (NE and platform), the performance and all TL1 messages sent from all managed NEs and which imply changes in the database.

  — Alarms

  — Performance Data (feeders)

  — Performance Data (ADSL)

  — Performance Data (ATM)

- Possibility to sort logs

  It is possible to show items in the logs while visualizing, saving or printing.

- EM time and data source

  The user can set the date & time of the AEM from the platform clock (i.e. operating system), from a network management system or from an external clock source, using NTP.

- SW upgrade

  The AEM provides an easy and transparent mechanism to upgrade the system to AEM R1.7.

- AEM-NE loss of communication

  The AEM periodically polls the NEs (heartbeat) to detect loss of communication and/or NE failures. Loss of communication is reported as an alarm.

2. **Security**

- Possibility of creating/deleting/modifying AEM users

  The AEM uses the security mechanisms provided by the SOLARIS Operating System.

- AEM security privilege levels

  Allows at least three privilege levels within the managed domain. This is mapped to the NE privilege levels accordingly.

  — Administrator: has all the permissions.

  — Maintenance: has configuration and monitoring permissions.

  — Monitoring: has alarm monitoring and testing permissions.

- NE user security privilege levels

  It is possible to administer the NE users and the privilege levels via the cut-through interface.

- User access is authenticated through user name and password
- Single login to access the domain

  Enables an authorized user to access multiple NEs simultaneously (e.g. multiple windows) using a single login and password.

- Domain partitioning

  Enables the NEs managed by the AEM to be partitioned into separate security domains and permits users access to the domains based on their areas of responsibility and profile.

- User inactivity timer[1]

  The user terminal will be locked with a screen saver once a configurable inactivity timer has expired. To unlock the terminal, the user has to type his/her password. The timer has to be configured by the administrator.

- Second inactivity timer[1]

  Once the terminal is locked, the user will be logged out once a second inactivity timer has expired. The timer has to be configured by the administrator.

- Lock scree*n*[2]

  The user is able to lock the screen whenever he wants. To unlock the terminal the user has to enter his/her password.

- OS/AEM secure access

  The AEM provides security for other OSs/EMs to access the system via northbound interface.

- AEM specific login and password management

  The system provides a login and password management independent from the operation system.

Common servers Common Servers offer general purpose services. A common server

- manages the AEM history and security logs

1 provided by the OS System (SUN Solaris)

- logs the history and security data of other processes upon request
- provides log information upon request
- provides a facility to generate and print client reports in the AEM printers
- provides event distribution services based on a supplier/consumer model.

1.3.1.3 Software platform

1.3.1.3.1 Software bus

CORBA architecture

The communication between the AEM processes is based on the common object request broker architecture (CORBA) standard. The heart of the CORBA architecture is the object request broker (ORB). The ORB is a software bus to which different applications can connect to offer their services and/or to use other applications' services (from which they are clients).

The ORB provides a transport mechanism that makes connected servers' location, platform and implementation transparent to their clients, making applications easier to distribute and scale.

Protocol

The protocol used by the ORB is the internet interoperability protocol (IIOP).

1.3.1.3.2 Repository

Introduction

The repository contains all the AEM information that must be persistent. It is supported by an object oriented database (ObjectStore) and the underlying operating file system. All components of the system have direct access to the repository to store/retrieve their own data.

Contained information

Information in the repository includes:

- NE inventory
  (for each NE: the hardware identifiers and the software versions)
- equipment and service provisioning data
- history and security logs
- external system communication parameters
- AEM configuration data
- alarms cache.

1.3.1.4 Graphical user interface (GUI)

Introduction

The Java based GUI is responsible for putting up forms, collecting user input (commands and data) and routing it on to the correct component. It also receives data from the relevant process which it uses to update its display. The GUI has direct access to the services provided by the AEM through the ORB.

Functionality, features

The GUI provides the following functionality/features:

- Support TL1 messages

  Supports all TL1 messages for all NE products for dumb terminal access. Allows direct input of TL1 messages. In some markets, direct input of TL1 messages may not be allowed and can be suppressed via the appropriate security permissions.

- Online help

  Provides access to online help which contains at least information on the operation of the AEM, meaning of the buttons, etc.

- Multiple windowing

  Provides multiple windowing for access to multiple NE information on a single screen.

- Multiple user access

  Provides for multiple users access to the AEM at the same time. Multiple users may include multiple OSs or NMSs as well as multiple GUI access.

- Time and date format

  Enables the user to use local/preferred time and date format. For example, the local calendar is supported or optional use of 24 hour clock versus a 12 hour clock.

- User friendly GUIs

  Provides a user-friendly interface and hides the complexities of the information models.

- Manageable objects organized in a hierarchy

  The configuration is implemented within a GUI hierarchy:

  — Network level, containing all groups of NEs

  — NE group level, containing a number of NEs or/and other NE groups

  — NE level, starting with shelf-view.

- Display of NEs in a map

  The NEs can be displayed in a map. The display follows the GUI hierarchy.

- Map handling

  It is possible to use maps for displaying NEs. The AEM provides a default map. Other maps can be loaded in an easy way.

- NE grouping

  Special graphical symbols are used to represent NE groups. It is also possible to expand the NE group level to display the NEs which belong to a specific group as well as to provide access from the NE level to the Configuration Management application.

- GUI process to be separated

  The graphical interface driver can be placed on a separate platform from the rest of the EMS application.

- MDS2-B GUI

  The AEM is able to detect and display the MDS2 shelf (NE R1.2) and the MDS2-b shelf (NE R1.5).

1.3.1.5 Northbound interface

Tasks

The northbound interface (NBI) performs all the tasks needed to communicate to other OSs. It allows external OSs access to the NEs managed by the AEM directly through TL1 commands via a NBI. This access is controlled by the NBI until the OS is disconnected.

TL1 northbound interface

The TL1 NBI allows an external OS access to the NEs managed by the AEM directly through TL1 commands for provisioning, testing and alarm purposes:

- Support of alarm forwarding.
- Support of 112 system.

COBRA northbound interface

The CORBA NBI allows an external OS access to the NEs managed by the AEM directly using the IDLs that AEM publishes or via a mediation device.

1.3.1.6 Southbound interface

Tasks

The southbound interface performs all the tasks needed to communicate to the NEs managed by the AEM. It provides distributed CORBA access which includes implementation and translation of TL1 commands, response and autonomous messages into equivalent CORBA requests and events.

TL1 southbound adaptors

The TL1 southbound adaptors isolate the main AEM functionality from the specific protocol used by the NEs. They are responsible for translating actions and state changes conveyed through CORBA messages from/into the NE specific message formats.

Functionality, features

The southbound interface provides the following functionality/features:

- Southbound TCP/IP TL1 client application (telephony application)

  Support for the TL1 client application on the southbound TCP/IP interfaces. TL1 is used for most of the OAM&P functions (see Chapter 1.3.1.2, page 1-14).

- Southbound TCP/IP FTP client applications (telephony application)

  Support for the FTP client application on the southbound TCP/IP interfaces. FTP is required for software download and NE data backup/restore.

- Southbound TCP/IP Telnet client applications (cut-through) (telephony application)

  Support for the Telnet application on the southbound TCP/IP interfaces. Telnet is used to provide a direct command line into the NE (i.e. an equivalent ASCII terminal interface).

- Southbound SNMP client applications (data application)

  Support for the SNMP application on the southbound TCP/IP interfaces. SNMP is used for most of the OAM&P functions on BB agents.

1.3.2 Hardware platform

1.3.2.1 Architecture

Components

A number of AEM Clients (UNIX Workstations) can be added to the AEM Server to support concurrent users or remote access to the server's applications. These clients can be connected through a TCP/IP infrastructure or a Wide Area Network (WAN). Examples are shown in Figure 1-9 to Figure 1-12.

Tasks of the components

The tasks of the components are:

- **AEM server:**
  Manages all the AEM applications and provides access to the NEs, the database and the external OS.
- **AEM client**:
  Formats the display of the application screens and manages the users sessions with the application, e.g. database access.

Conceptional representation

Figure 1-4 is a conceptual representation of the various generic components.

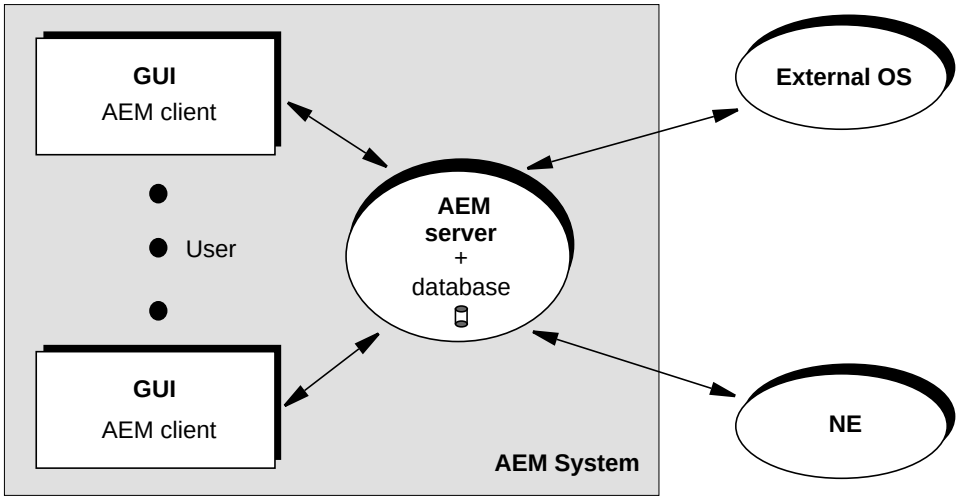

Figure 1-4 Hardware components

Examples of AEMs

Two examples of an AEM system are shown in Figure 1-5.

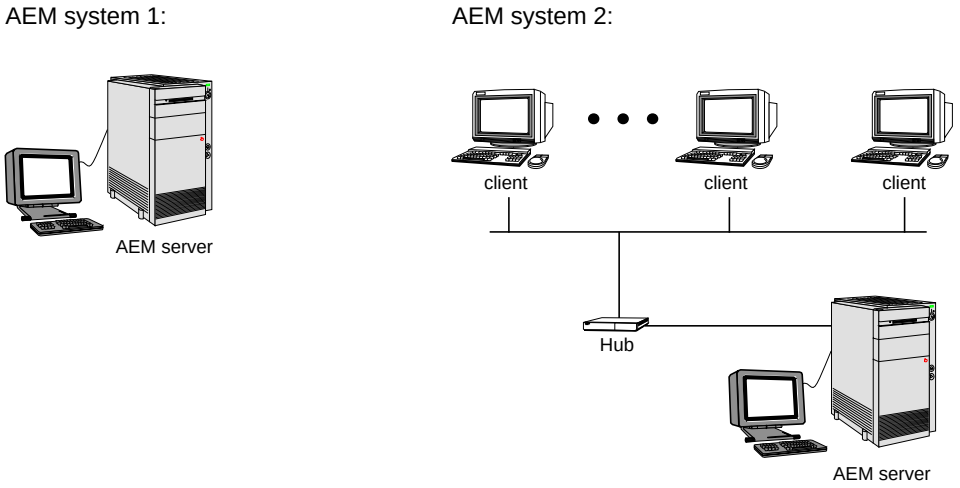

Figure 1-5 Examples of AEMs

1.3.2.2 Requirements

Server/clients

A SUN SOLARIS work station can be used as AEM server as well as AEM client.

Peripherals

The AEM system may use a number of peripherals with the following tasks:

- **CD-ROM:**
  Used for installing the system software.
- **Tape drive or another removable device (optional):**
  Used for backup and restore functions.
- **Printer:**
  Used for obtaining hard copies, e.g. configuration/alarm reports or performance monitoring measurement information.

1.4 Working with AEM

Goal of this chapter

This chapter will outline the management activities and processes in the AEM. The main emphasis is on presenting everyday operation processes. The chapter is structured with respect to the various network life cycle phases (see further below).

User profiles

There are 3 default user profiles: the administrator, maintenance and monitoring profile. The rights belonging to these profiles are described in Chapter 1.4.4, page 1-30.

Life cycle of a network

The individual life cycle of a telecommunication network has the following phases: planning, installation, provisioning, operation & surveillance, modification and finally decommissioning. Modification of a network may take the form of fine adjustment, expansion or restructuring of the network, and addition of new functionality.

Figure 1-6 shows the life cycle of a network.

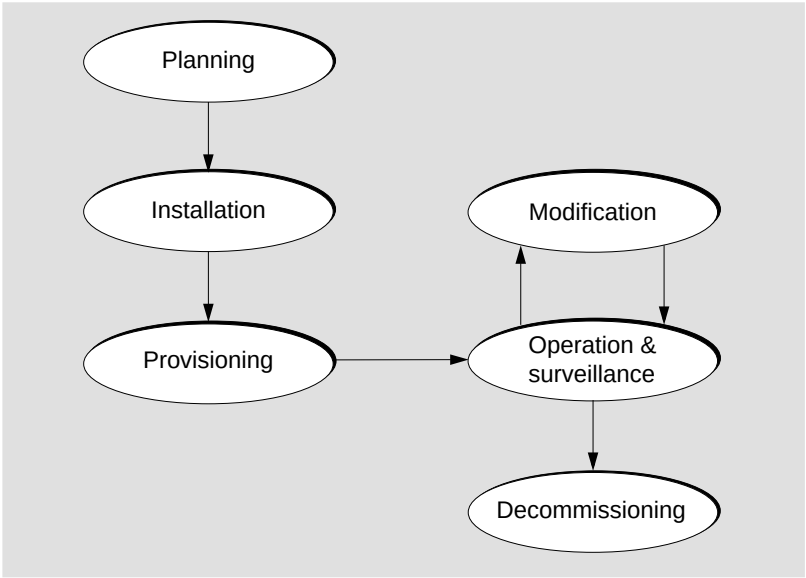

Figure 1-6 Life cycle of a network

Support by AEM

The AEM is mainly used in three life cycle phases: during network provisioning, network modification and network operation & surveillance. The installation phase is supported by the graphical system interface for telephony services (GSI-NB).

1.4.1 Network planning and physical installation

Network planning

In the network planning phase, all specifications and requirements of the future network operation are translated into a concrete network structure. That means, the network planning phase, during which a decision on the network topology, equipment and components is made, has to take place before the operation with the AEM starts.

Physical installation

The installation of the network follows the planning phase. The installation includes the following steps:

- Physical NE installation.
  This includes the installation of racks, packs and cabling of the NEs.
- Creation of a data communication network (DCN) plan

  Communication between the AEM and the NEs is carried out via the DCN. A DCN plan should be drawn up before provisioning the network to ensure that the AEM can reach all NEs and that the administration of the DCN does not lead to an undue increase in performance requirements.
- NE connection to the AEM server
- OS connection to the AEM server (optional)
- Installation of the third-party, application and AEM software on the AEM server.

Network status after physical installation

After completion of these steps, the network operator has at his disposal a network which is connected physically with AEM and which is, in principle, ready for operation.

1.4.2 Configuration management

Introduction

The configuration management in accordance with the specific operating conditions of the network operator is performed by special provisioning actions. It is assumed that the NEs and AEM have already been physically connected.

Provisioning actions

Figure 1-7 provides an overview of the provisioning actions and the text which follows gives a detailed description.

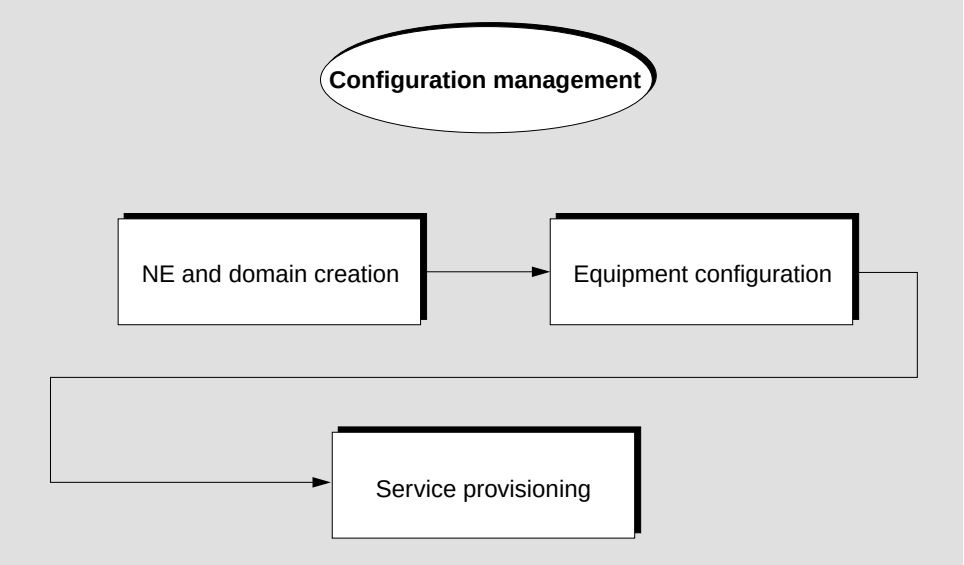

Figure 1-7 Network provisioning

NE and domain creation

Prior to equipment configuration and service provisioning, the NEs must be known in the AEM. To achieve this, the following 4 steps are necessary:

1. creation of domains
2. creation of NEs
3. assignment of NEs to any domain(s)
4. logical connection of NEs.

All steps are described in detail in Chapter 5.

Equipment configuration

NEs can be configured if they are known in the AEM. The following measures should be performed:

- selection of the timing synchronization source
- selection of the COMDAC (simplex/duplex) and IO-DS1 protection scheme
- selection of those slots for which an absence of the pack will be alarmed (only applicable for COMDAC)

- include data equipment configuration (provisioning of card types and ATU Subshelves, ADSL drops configuration)
- provisioning of card types which are inserted in a slot
- configure ISDN in POTS mode via cut-through
- provisioning of the protection switching.

All steps are described in detail in Chapter 5.

Service provisioning

If the NEs are configured and integrated in the network, cross connections can be defined. The following actions are necessary:

- creation of VRT/VB logical feeders
- changing of voice frequency data enhancement (VFDE) for TR-303 VRTs
- datalink protection switching for TR-303 VRTs
- creation of VRT/VB logical lines (Subscriber)
- cross-connection logical line to logical feeder
- include data service provisioning (configuration of shelf vpi, creation of VP services, creation of VC services).

All steps are described in detail in Chapter 6.

Network Status after Provisioning

After the provisioning phase the NEs can now be controlled and monitored by the AEM and start operation & surveillance.

1.4.3 Network Operation & Surveillance

Actions

During network operation & surveillance, the administration, control and supervision of the network mainly include

- Fault Management
- Network Modification
- Performance Monitoring.

Required rights

The administrator rights are sufficient to perform all required operations. The visual check of parameters and displays on the GUI requires monitoring rights only.

1.4.3.1 Fault management

Alarm types

There are two alarm types: alarms generated by the NEs and alarms generated by the AEM itself, e.g. an alarm indicating that log files without archiving is being removed (LOG_DEL_FULL). All alarms are displayed in the alarm viewer. It allows the network operator to detect the alarm and to locate its source.

General fault handling

Figure 1-8, page 1-26 shows the general fault handling. In the following the individual phases are described in more detail.

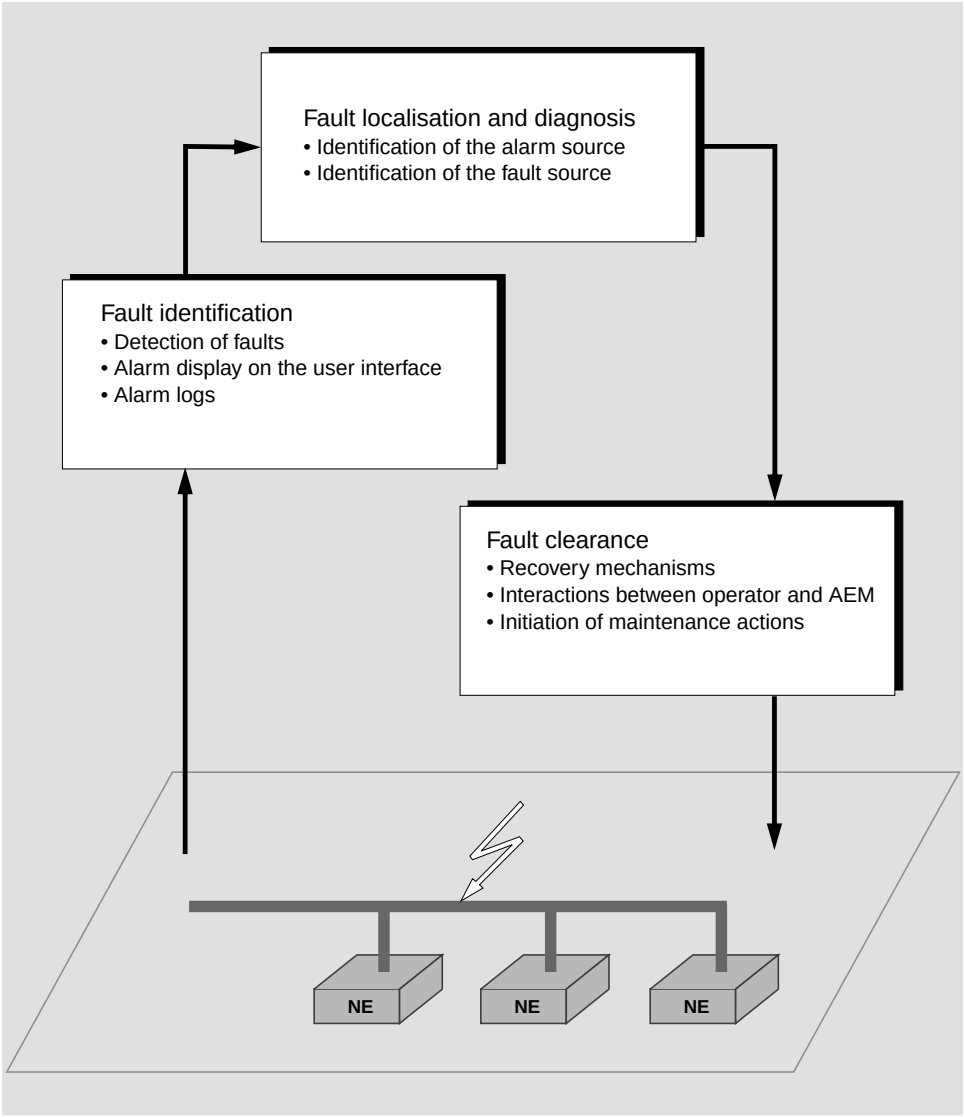

Figure 1-8 General fault handling

1.4.3.1.1 Fault identification

Background

The AEM gathers information about faults occurring in the network and forwards this information to the network operator. This procedure comprises two tasks: on the one hand, the fault must be identified, and on the other hand, the fault information must be processed as alarm notifications to be displayed on the user interface.

Detection of faults

If an NE fault is detected, the NE notifies the AEM. The notification comprises the type of fault and the address of the originating NE. The AEM detects and processes such a notification automatically.

If the circuit of an NE fails that is responsible for the communication with the AEM, the fault is identified differently. No alarm notification will be sent to the AEM. The AEM detects the fault by testing at regular intervals whether the association to the particular NE is dropped. In this case the AEM itself raises an alarm.

Alarm display on the user interface

A complete alarm overview and a detailed alarm description is provided by the alarm viewer. All relevant alarm data (e.g. alarm severity) are shown.

Alarm logs

The AEM keeps alarm logs to store the alarm notifications. Alarm logs are used among other things for long-term observations, e.g. of the fault behaviour in the network. Alarm logs exist for pending alarms, for the alarm history and for clock events in the network.

1.4.3.1.2 Fault localisation and diagnosis

Reaction to fault identification

When a fault has been detected, it is necessary to localise its source and diagnose its cause in order to initiate appropriate repair procedures. To locate the cause of fault, the AEM provides information gathered from alarm notifications and general network data.

Fault source

Each alarm notification contains the name of the network component from which it originates. This network component, however, need not always be the real fault source.

1.4.3.1.3 Fault clearance

Background

The AEM detects faults automatically and clears various software errors by itself (fault recovery). The transmission characteristics of the network will not be impaired by this.

Recovery mechanisms

System recovery protects the AEM and associated users from unnecessary problems and avoids or reduces manual work.

Recovery processes vary depending on the type of failure that occurred, the structures affected, and the type of recovery. If no files are lost or damaged, recovery may amount to no more than restarting an instance. If data has been lost, recovery requires additional steps, such as database restoration using a previous backup.

AEM recovery mechanisms are initiated mainly by the following situations:

- NE software crash
- AEM crash
- Communication between AEM and an NE is interrupted.

In the case of an NE crash, the AEM configures NEs in accordance with the internal state of the AEM database. In the event of an AEM crash or an interruption in communication, the AEM downloads the current NE configuration from the NE to its database.

Interactions between operator and AEM

Faults (software or hardware), the cause of which the AEM cannot eliminate itself by means of a recovery mechanism, must then be handled by the user. The AEM supports this. The AEM first displays the fault on the user interface. The user then initiates appropriate measures to clear the fault and/or to maintain network operation. This includes access to faulty network units and the redirection of the network traffic. The AEM supports both.

Initiation of maintenance actions

Sometimes, additional maintenance actions are necessary to clear a fault. For example, some network disturbances can also originate in hardware faults. Such hardware faults often require the faulty component to be replaced, and this can only be done by maintenance personnel.

NOTE:
More detailed information about maintenance actions is provided in Chapter 7.

Fault clearance

Once the fault has been cleared, the alarm is reset automatically.

1.4.3.2 Network modification

Types of network modification

Usually, network operation & surveillance requires structural modifications in the network. The AEM supports this. There are two types of network modifications:

- installation or removal of NEs
- modification of NEs.

1.4.3.2.1 Installation and removal of an NE

Installation of an NE

For installing a new NE in an existing network the following steps must be carried out:

1. Check whether the new NE can be incorporated in the existing DCN plan drawn up in the network planning phase (if not, the DCN plan must first be revised)
2. creation of the NE
3. assignment of the NE to a domain
4. logical connection of the NE
5. selection of the timing synchronization source
6. selection of the COMDAC protection scheme (simplex/duplex)
7. selection of those slots for which an absence of the pack will be alarmed (COMDAC)
8. provisioning of card types which are inserted in a slot
9. provisioning of subshelves.

All steps are described in detail in Chapter 5.

Removal of an NE

If an NE is no longer managed by the AEM, the administrator deletes it from the AEM database.

NOTE:
When an NE is deleted from the AEM database, it is still fully functional. The TL1 and TCP/IP links between the AEM and the NE will be closed and the management access via the AEM is not possible until the NE is created and connected again.

1.4.3.2.2 Modification of NEs

Adding a pack

NEs can be modified by adding or removing packs. The AEM recognises automatically which pack has been plugged and where. As only default settings are set on the new pack, the system administrator must adapt the configuration.

Removing a pack

When removing a pack, it must be ensured that there are no connections running via this unit. Then the pack may be removed.

1.4.3.3 Performance monitoring

Tasks of performance monitoring

Performance management guarantees that the transmission quality does not fall below a minimum performance threshold.

Another task is the recording of data for analysis at a later date, e.g. storing alarms in logs and print them.

1.4.4 System security and user groups

Protection from unauthorised access

The AEM provides mechanisms which protect the system from unauthorised access. The user groups play a very important role in this context as they define different levels of access rights for the individual users.

User groups

By default there are 3 user groups: the administrator, maintenance and monitoring user group. Further groups can be added.

Access rights

Table 1-1 provides an overview of the access permissions the user groups should have

Table 1-1 Assignment of user groups to applications/tasks

Application	Task	User Group
System Administration	Process Management	Administrator
User Administration and Profiling	Access Policy Management	Administrator
	Domain Management	Administrator
Log Management	Actions	Administrator, Maintenance
	System Internal Events	Administrator, Maintenance
	Autonomous Report	Administrator, Maintenance, Monitoring
Alarm Management	Acknowledge	Administrator, Maintenance
	View[1]	Administrator, Maintenance, Monitoring
	Clear	Administrator, Maintenance
Groups and NEs Management	Equipment and Service Provisioning	Administrator, Maintenance
	View[1]	Administrator, Maintenance, Monitoring
	Test	Administrator, Maintenance, Monitoring
	Cut-through	Administrator
	Groups and NEs Configuration	Administrator, Maintenance
	Performance Management	Administrator, Maintenance, Monitoring

1 If the VIEW task is unassigned but other tasks are still assigned, these tasks are left as assigned to this user group. But the user is not able to perform any kind of operation over these tasks until the VIEW task is assigned again.

1.5 Network configuration

The network configuration depends on the user applications. The most probable configurations are described below and illustrated in Figure 1-9, page 1-31 to Figure 1-12, page 1-34.

NOTE:
If there are various configuration options of the DCN, these are shown in the figures by means of dashed lines. The hubs are optional depending on the number of client platforms and NEs.

1.5.1 AEM server without clients and external OS (LAN)

AEM server connected to the NEs using a local area network (LAN).

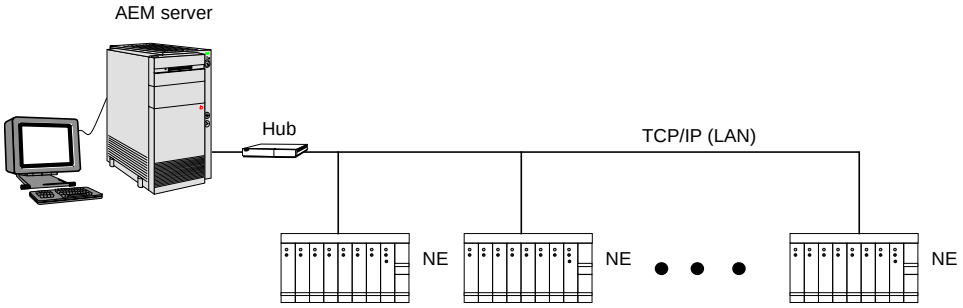

Figure 1-9 AEM server without clients and external OS (LAN)

1.5.2 AEM server with clients and without external OS (LAN)

AEM server and one or more clients connected to the NEs using a LAN.

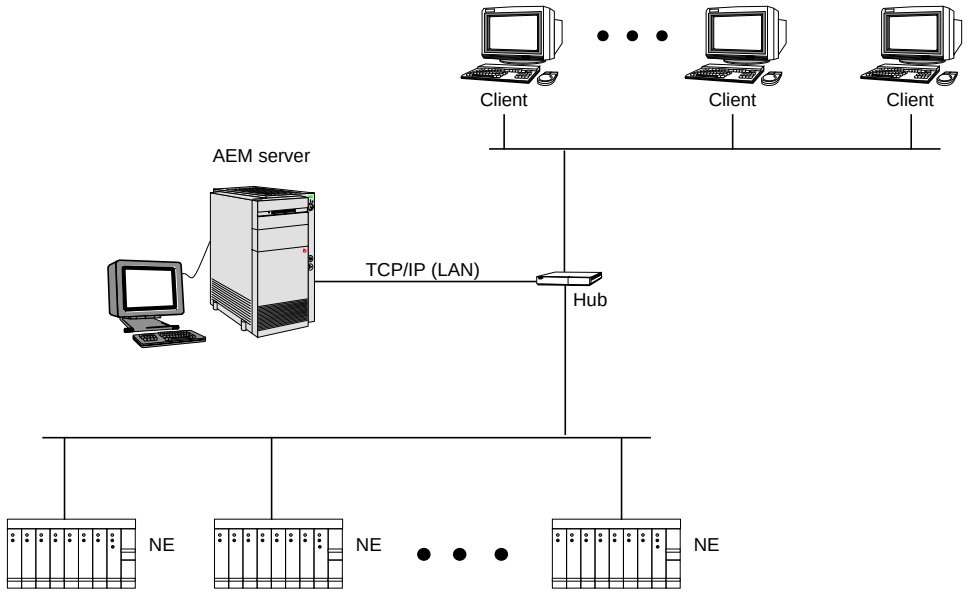

Figure 1-10 AEM server with clients and without external OS (LAN)

1.5.3 AEM server without clients and with external OS (WAN)

AEM server connected to the NEs using a LAN and connected to one or more external OSs using a WAN link.

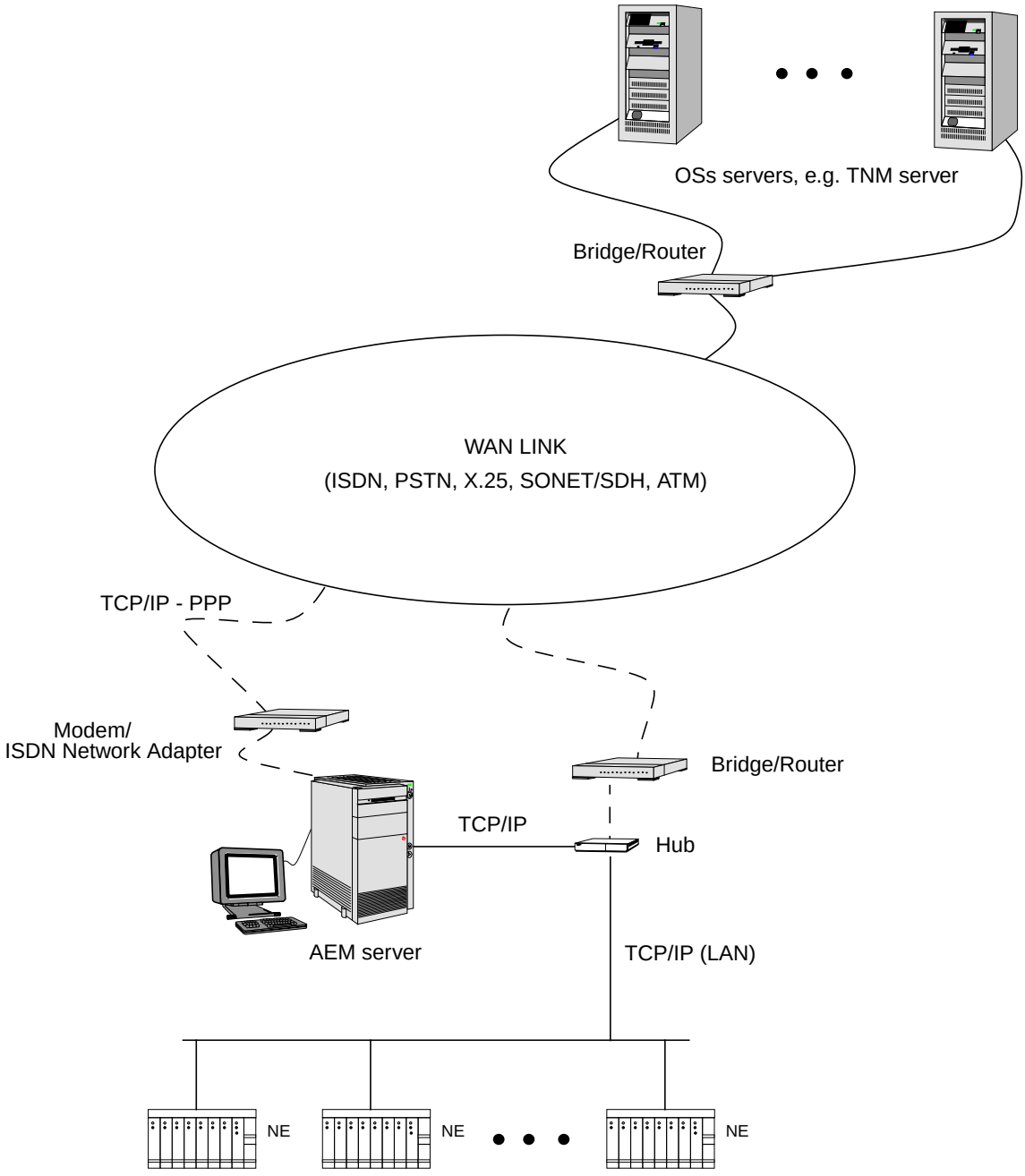

Figure 1-11 AEM server without clients and with external OS (WAN)

1.5.4 AEM Server with Clients and external OS (WAN)

AEM server and one or more clients connected to the NEs using a WAN link and connected to one ore more external OSs using a LAN connection.

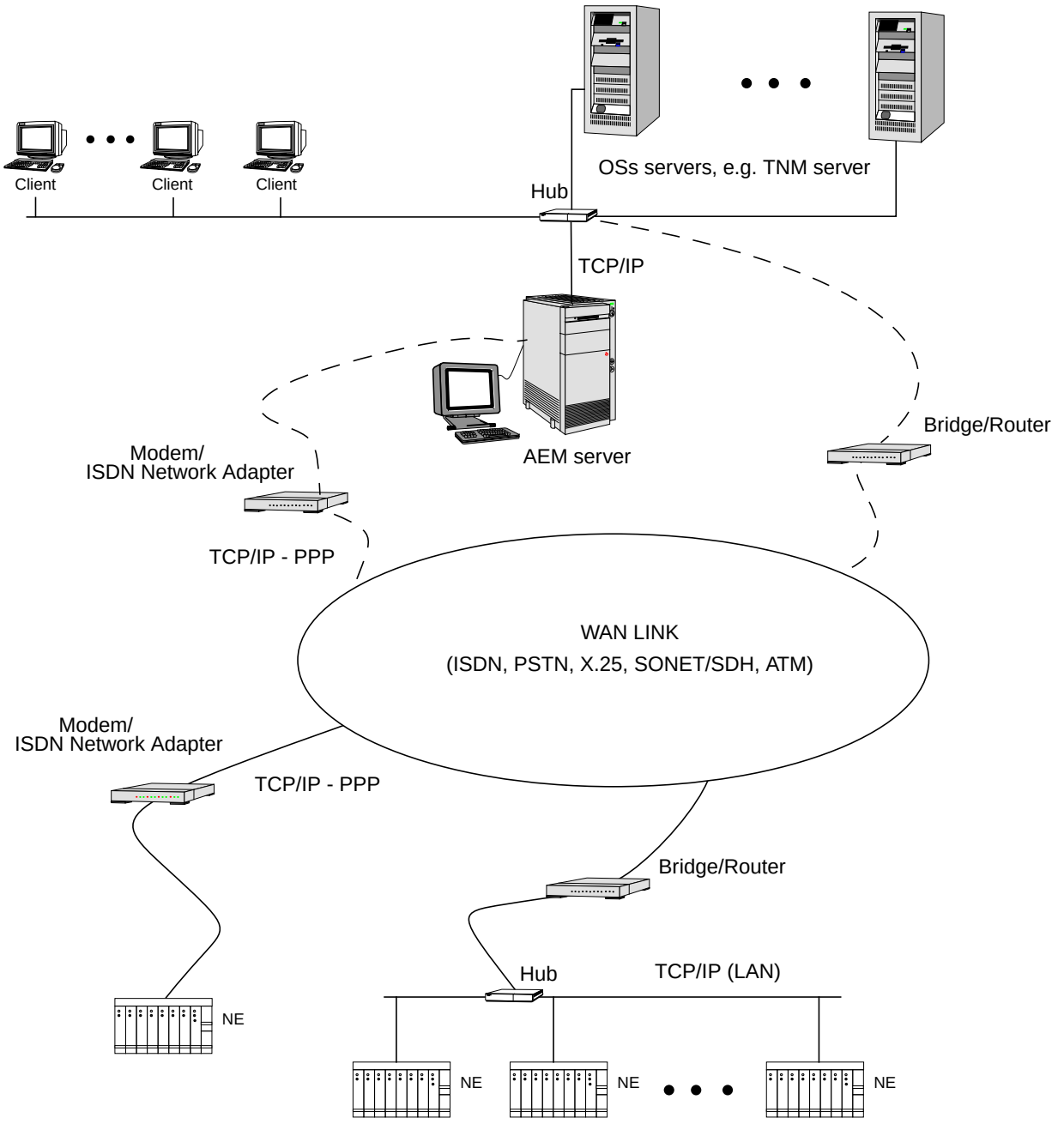

Figure 1-12 AEM server with clients and external OS (WAN)

Software installation and commissioning

2

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Software installation and commissioning

2

2.1 General

The *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7 runs on SUN SPARC Solaris 2 computers running Solaris 2.6 plus the patches recommended by SUN.

In order to successfully install the AEM R1.7 for the SUN Solaris installation the following has to be taken into account:

- **Disk partitioning**:
  HDD partitioning should include, in addition to the standard UNIX entries (e.g. /, /usr, /var, etc.), two entries for the AEM software and the transaction.log (cf. Chapter 2.1.1, page 2-2 for size requirements). Additionally a temporal directory with 2 Gbytes is necessary for uncompressing the installation files.
- **Swap space**:
  In addition to the SUN recommendation, 100MB per platform should be configured for OODBMS requirements.
- **NIS**:
  If more than one AEM platform is to be used, NIS should be configured in the server, so all the AEM clients will share the logins and password which are configured in the server tables. All the users require a NOT null password in order to manage AEM.
- **NFS**:
  Network File Sharing is not required even when using a LAN, but if NIS is used, NFS allows operators to log-in in any client platform having access to their home directories.
- **SUN patches**:
  All the Solaris patches described in the shopping list and included on CD-ROM 1of 4 under SUN directory must be installed before AEM installation

- **LAN & WAN configuration**:
  E.g. default router to NEs, etc. must be available.

How to install SUN Solaris is described in SUN support/SUN Solaris Installation Guide.

Assumptions

For the following description it is assumed that

- the hardware required to install the AEM R1.7 is prepared
- the AEM R1.7 consists of a number of server and client applications. The software installation may imply the installation of all these applications or only some of them.

JRE

- the AEM R1.7 includes as part of its environment the Java Runtime Environment (JRE) Release 1.1.7. JRE is included here free of charge for the final user.

2.1.1 Introduction

System requirements

This document is intended as a guide for the person(s) who will be responsible for the installation and configuration of the hardware and software required for the AEM R1.7 installation.

The *AnyMedia* distribution can be divided into two parts, server-side installation and client-side installation. Both include specific third-party applications needed to run the *AnyMedia* successfully. The server side application includes obligatory modules and optional ones which will be installed depending upon the customer needs.

Disk space

To store the AEM R1.7 files, your system must have the following amount of free disk space:

- AEM client: 60MB
- AEM server: The space will depend upon the number of NEs managed by the system because of the data size. The recommended size for n NEs is obtained from adding the following (numbers in kbyte):

  software=1000 (aprox.)

  logs=35000 (per NE)

  databases=0.8 + n

  transactions=2*(0.8+0.35*n)+n+25%

  The size calculated is based on maximum configurations and includes the overhead necessary for the temporary data used in operation.

It is recommended to create a separate partition to locate the transaction log file needed by ObjectStore. This partition would be used for this purpose only. It must not be deleted or managed because this file is only created and managed by ObjectStore. Note that without this file ObjectStore is not able to work and also if a new partition or location is chosen, it needs write permissions for the *AnyMedia*

user (login). If you choose a directory under *AnyMedia* location the correct owner and permits will be automatically provided in the installation process of *AnyMedia*.

The following table shows the recommended size of the partitions for a maximum of 10, 40, 100 and NEs:

NEs	/part 1	/part 2
10	475 MB	11 MB
40	500 MB	37 MB
100	530 MB	100 MB
600	700 MB	230 MB

where /part1 contains all the AEM server software and data bases and the /part2 is dedicated to the transaction log.

Distribution media

The AEM R1.7 distribution media is on CD-ROMs which contain all the software plus information and installation scripts.

Figure 2-1, page 2-4 to 2.1, page 2-1 show the full AEMR1.7 distribution tree which consist in directories with the installation/remove scripts plus the installation and licensing documents. Subdirectories named "AnyMediaEMR1.7" contains the software which is divided in several packages.

A package contains a collection of files and directories required for the application and scripts to control how, where and if the package is installed.

These were built using the application packaging tools offered by Solaris (refer to your SUN documentation for more information).

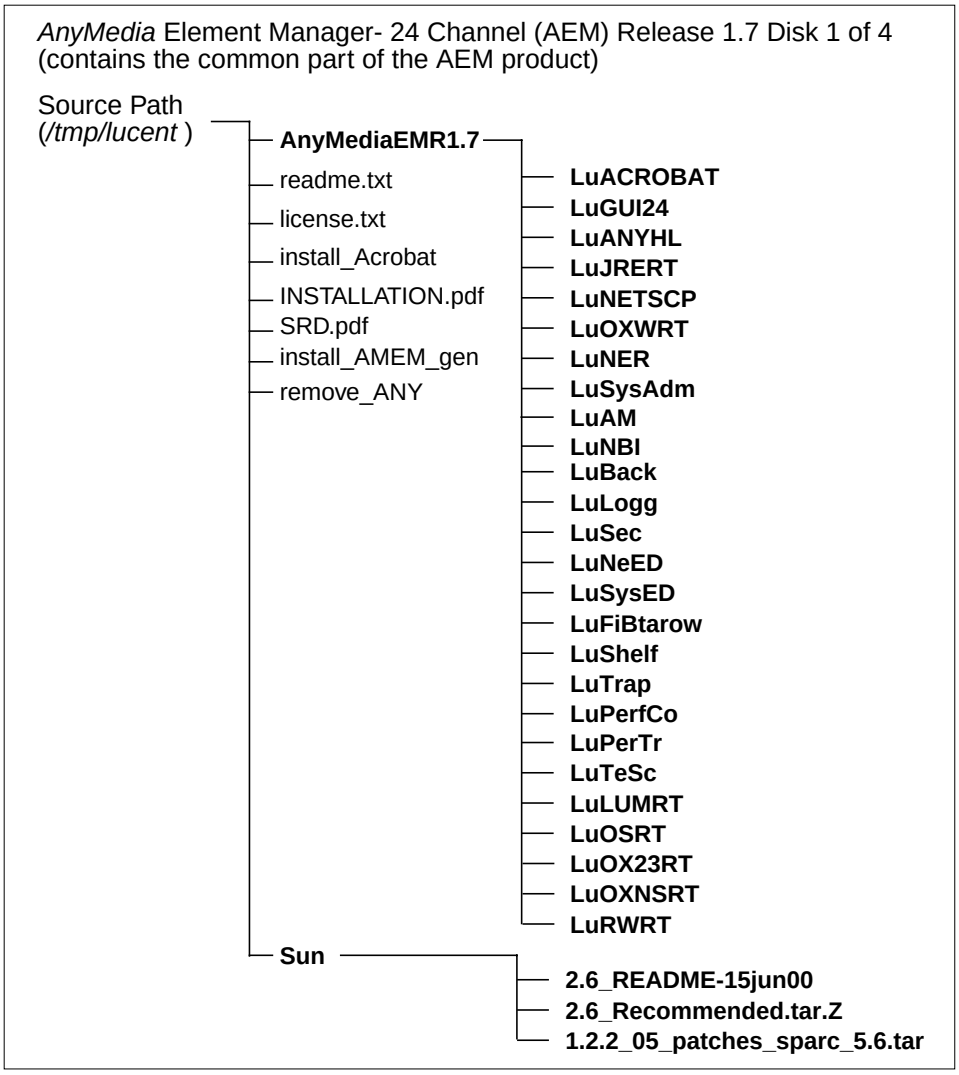

Figure 2-1 AEM R1.7 distribution tree CD-ROM 1

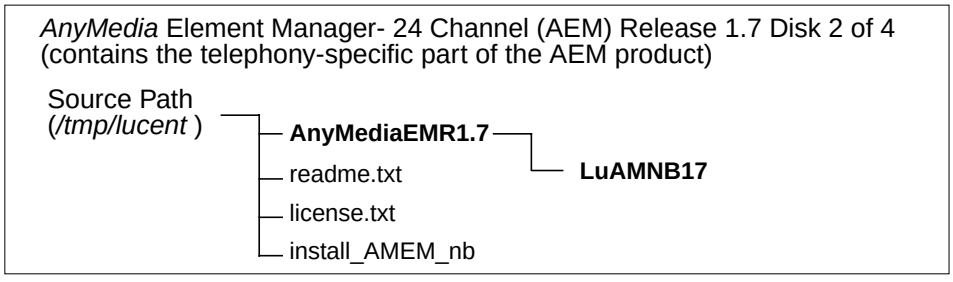

Figure 2-2 AEM R1.7 distribution tree CD-ROM 2

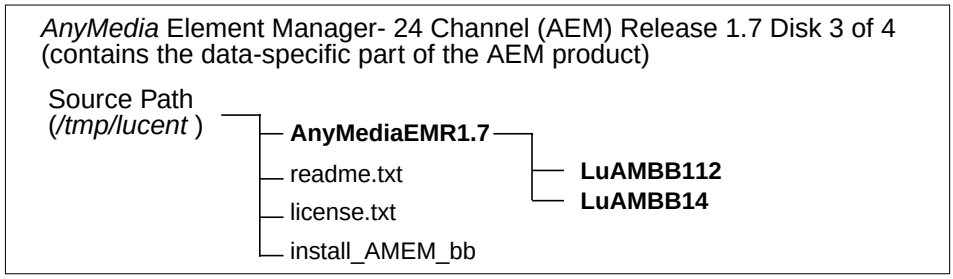

Figure 2-3 AEM R1.7 distribution tree CD-ROM 3

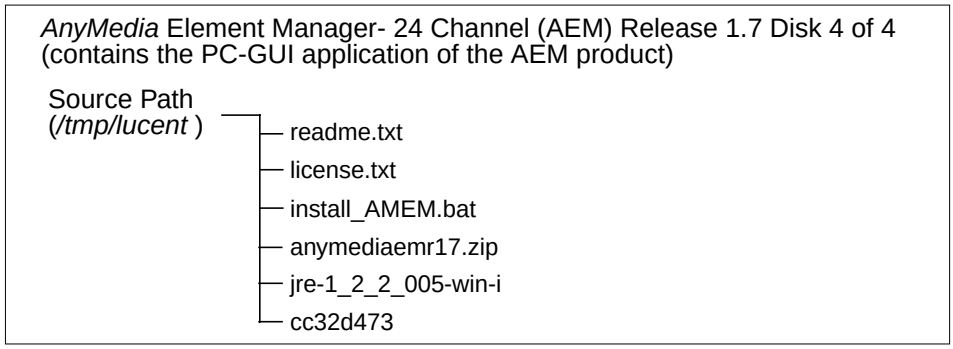

Figure 2-4 AEM R1.7 distribution tree CD-ROM 4

Installation scripts

The install_AMEM_gen, install_AMEM_nb or install_AMEM_bb scripts run in the korn shell <ksh> environment. The install_AMEM.bat (on CD-ROM 4) runs on Microsoft windows NT.

TCP ports

The following TCP ports **must** be available in order to successfully run the AEM R1.7:

- 1570: Orbix daemon uses the TCP port 1570 in order to wait for incoming connections that use the Orbix protocol.
- 1575: Used by Lumos
- 1591 to 1641: As CORBA servers are activated by the Orbix daemon, they are assigned to a port that clients can communicate with.

Time zone

The time zone **must** be the same for the *AnyMedia* client <GUI>, LUMOS, Network Element and OS.

Update process environment

Since the number of AEM R1.7 processes is so high, further process environment customization is needed on the server (related to IPC semaphores).
Carry out the following command to verify the value of the SEMMNU parameter:

```
sysdef | grep SEMMNU
```

The output of this command is like this:

```
30  undo structures in system (SEMMNU)
```

If the number appearing (e.g. 30) is less than 200, edit the */etc/system* file by adding the following line at the end of the file:

```
set semsys:seminfo_semmnu=200
```

Reboot the server workstation.

2.2 Installation procedure

General

The AEM R1.7 distribution includes one installation script per CD-ROM called **`install_AMEM_*`** which shall be used in a full installation of the CD-ROM (it includes all packages stored on the distribution media). Also, the script can be used to install individual packages (it will detect if any package is not installed and ask the user to install it) - cf. Chapter 2.2.2, page 2-71.

This guide shows the flow of the installation - according to the interaction with the administrator - using the installation script provided in the distribution.

Common tasks

Common actions must be make in both cases, as follows:

- You need to be logged on as **`root`**.
- Get ready your distribution medium:

Insert and mount the CDROM

Insert and mount the CD. If the machine is running the vold, it will recognize that the CD is in place and mount it on **`/cdrom/AnyMediaEMR17`** (depending on your system configuration, **`/cdrom/AnyMediaEMR17`** might have to be replaced with a different device name). Depending on the configuration of **`vold`** you may have to append a trailing dot (".") to references to file names on the CD. This is due to **`hsfs`** imposing a suffix on the file names. If the machine is not running the **`vold`**, type:

```
# mount -F hsfs -o ro,notraildot
/dev/dsk/c0t6d0s2/cdrom
```

The device identifier c0t6d0s2 is configuration dependent, and as such will vary from machine to machine.
This will mount the CD on **`/cdrom`** (depending on your system configuration, **`/cdrom`** might have to be replaced with a different mount point. For more information about on how to mount a CD-ROM drive refer to your SUN documentation.

2.2.1 Full installation

This type of installation uses the **`install_AMEM_*`** script in order to install all packages contained in the distribution.

For the following description it is assumed that:

- The hardware and software requirements to install the AEM R1.7 are prepared
- AEM R1.7 software have not been installed previously
- Common actions showed above have been made
- A new user shall be created on the target system, who will be the owner of the AEM R1.7 files. The server workstation shall be a NIS server and the client workstations shall be NIS clients. All the users shall be included in NIS and exported through the network in order to be recognized by the AEM software. For more information about the NIS tools refer to your SUN documentation.

- A NIS group is also necessary. Typically a new group shall be created to include all the AEM users.

Procedure

Complete the following procedure to install the AEM R1.7 application.

NOTE:
Lines with indentation are the system responses. They are included here to guide the installation procedure.

2.2.1.1 Server side installation

The installation of the AnyMedia server side is divided into the following parts:

- Installation of the third party software
- Installation of the common packages
- Installation of the optional packages (currently there are 4 optional packages).

2.2.1.1.1 Installation of the third party software

Complete the following procedure to install the third party software.

Step	Procedure

1. Go to the directory where the installation script is placed on CD-ROM 1 to 4.

2. Type **./install_AMEM_gen** and press **Return**.

```
AnyMedia NB EM R1.7 installation
CopyRight (c) 2000 Lucent Technologies, Inc.
All Rights Reserved

**Pre-requisites**

1.- Before attempting to install the applica
tion, please,read the readme.txt file.

2.- AnyMedia EM R1.7 runs on SUN SPARC Solaris 2
computers running Solaris 2.6 plus security and
Y2000 and packs 105490-07, 105568-13,
105210-19, 106040-12, 105633-21,106409-01,
105181-15, 105669-07, 105284-25 patches recom-
mended by SUN and 106255-01 patch.

3.- TCP ports:
The following ports MUST be available in order
to succesfully run the AnyMedia EM:
* 1570: Orbix daemon uses the TCP port 1570 in
order to wait for incoming connections that use
```

```
the Orbix protocol.
* 1591 to 1641: As Corba servers are activated
by the Orbix daemon, they are assigned a port so
that clients can communicate with it.
It is essential that these ports are not
used by any process on the SAME SUBNET DOMAIN.

4.- The install_AMEM script runs on K-shell
<ksh> environment.

5.- At least the system environment variable
PATH MUST include the paths "/usr/bin",
"/usr/sbin" and "/usr/ucb" (for instance,
"export PATH=$PATH:/usr/bin/:/usr/sbin:/usr/ucb").

6.- The time zone MUST be the same for the Any
Media Client <GUI>, LUMOS and Network Element.
This parameter is needed for installing the Any
Media Client.

******************

Do you like to continue [y,n,?,q]
```

3. Type **y** and press **Return** to continue or type **n** or **q** and press **Return** to exit.

```
AnyMedia NB EM R1,7 installation

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Please, choose the installation mode

1 ADM  <Administration package installation>

2 GUI <Client package installation>

Enter selection [?,??,q]:
```

NOTE:
Type **?** to get help, type **??** to repeat the prompt and type **q** to exit from the installation.

4. Type **1** and press **Return**

```
                    Packages to install: LuLUMRT, LuRWRT,
                    LuOX23RT, LuOXNSRT, LuOSRT
```

LUMOS build 3.0 installation

```
                    Processing package instance <LuLUMRT> from
                    </home/bldr17/LOAD_36.1.1/build/
                    lucent/AnyMediaEMR1.7>

                    Lumos Runtime for AnyMedia EM R1.7
                    (sparc-solaris) Build 3.0 run-time

                    OK, No previous package LuLUMRT have been found.

                    Here is a list of your partitions and the free
                    space in each of them:

Filesystem          kbytes    used      avail     capacity Mounted on

/dev/dsk/c0t0d0s0   143927    36990     92545     29%      /
/dev/dsk/c0t0d0s4   625262    401569    167420    71%      /usr
/dev/dsk/c0t0d0s3   96455     11161     75649     13%      /var
/dev/dsk/c0t0d0s6   6591133   4250252   2274970   66%      /homelocal
/dev/dsk/c0t0d0s5   240399    8597      207763    4%       /var/cache
swap                1204840   40        1204800   1%       /tmp
masstc1:/export1/bld/2/bldr17 51014048 49174256 1499704 98%  /home/bldr17
masstc1:/export1/bld/2/syi_pl 51014048 49174256 1499704 98%  /home/syi_pl

                    Enter install directory [/opt/lucent/LUMOS]
                    [?,q]
```

5. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Checking your DNS domain name...

The DNS domain name found was: es.lucent.com

What is your DNS domain name
[default: es.lucent.com][?,q]
```

6. Type your DNS domain name and press **Return** or press **Return** to accept the default name.

```
Select owner and group for package files.

NBR  USER:GROUP

 1 halt:other

 2 root:other

 3 smtp:root

 4 ver1:staff

Enter selection [?,??,q]:
```

7. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected

Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.

This package contains scripts which will be ex
ecuted with super-user permission during the
process of installing this package.

Do you want to continue with the installation
of <LuLUMRT> [y,n,?]
```

8. Type **y** and press **Return**.

```
Installing Lumos Runtime for AnyMedia EM R1,7
as <LuLUMRT>

## Installing part 1 of 1.

<files list>

............

[ verifying class <none> ]

## Executing postinstall script.

You have the installation logfile in
/tmp/EM_Install_LuLUMRT.log

Installation of <LuLUMRT> was successful.
```

RogueWave 1.0.7 & 1.1.2 installation

```
Processing package instance <LuRWRT> from
</home/bldr17/LOAD_36.1.1/build/lucent/
AnyMediaEMR1.7>

RogueWave Libraries Runtimes for AnyMedia EM R1.7
(sparc) std0130u thr0130u tls0710u tpr0112u

OK, No previous package LuRWRT have been found.

Filesystem                    kbytes   used     avail    capacity  Mounted on

/dev/dsk/c0t0d0s0             143927   36990    92545    29%       /
/dev/dsk/c0t0d0s4             625262   401569   167420   71%       /usr
/dev/dsk/c0t0d0s3             96455    11256    75554    13%       /var
/dev/dsk/c0t0d0s6             6591133  4294968  2230254  66%       /homelocal
/dev/dsk/c0t0d0s5             240399   8597     207763   4%        /var/cache
swap                          1202064  48       1202016  1%        /tmp
masstc1:/export1/bld/2/bldr17 51014048 49185848 1488120  98%       /home/bldr17
masstc1:/export1/bld/2/syi_pl 51014048 49185848 1488120  98%       /home/syi_pl


Enter install directory [/opt/lucent/rw] [?,q]
```

9. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Select owner and group for package files.

NBR  USER:GROUP

  1 halt:other

  2 root:other

  3 smtp:root

  4 ver1:staff

Enter selection [?,??,q]:
```

10. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected

Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.
```

```
This package contains scripts which will be ex
ecuted with super-user permission during the
process of installing this package.

Do you want to continue with the installation
of <LuRWRT> [y,n,?]
```

11. Type **y** and press **Return**.

```
Installing RogueWave Libraries Runtimes for
AnyMedia EM R1.7 as <LuRWRT>

## Installing part 1 of 1.

<files list>

.............

"[ verifying class <none> ]

## Executing postinstall script.

You have the installation logfile in
/tmp/EM_Install_LuRWRT.log

Installation of <LuRWRT> was successful.
```

OrbixMT 2.3c patch 02 installation

```
Processing package instance <LuOX23RT> from
</home/bldr17/LOAD_36.1.1/build/lucent/
AnyMediaEMR1.7>

Orbix 2.3c02 Runtime for AnyMedia NB-EM R1.7
(sparc-solaris) Version 2.3c02MT Run-Time

OK, No previous package LuOX23RT have been found.

Here is a list of your partitions and the free
space in each of them:

Filesystem                    kbytes    used      avail     capacity Mounted on

/dev/dsk/c0t0d0s0             143927    36990     92545     29%      /
/dev/dsk/c0t0d0s4             625262    401569    167420    71%      /usr
/dev/dsk/c0t0d0s3             96455     11285     75525     13%      /var
/dev/dsk/c0t0d0s6             6591133   4313833   2211389   67%      /homelocal
/dev/dsk/c0t0d0s5             240399    8597      207763    4%       /var/cache
swap                          1201856   56        1201800   1%       /tmp
masstc1:/export1/bld/2/bldr17 51014048  49192112  1481856   98%      /home/bldr17
masstc1:/export1/bld/2/syi_pl 51014048  49192112  1481856   98%      /home/syi_pl

Where should Orbix be installed?
[/opt/lucent/OrbixMT_2.3c2] [?,q]
```

12. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Checking your DNS domain name...

The DNS domain name found was: es.lucent.com

What is your DNS domain name
[default: es.lucent.com][?,q]
```

13. Type your DNS domain name and press **Return** or press **Return** to accept the default name.

```
Select owner and group for package files.

NBR  USER:GROUP

  1 halt:other

  2 root:other

  3 smtp:root

  4 ver1:staff

Enter selection [?,??,q]:
```

14. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected

Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.

This package contains scripts which will be ex
ecuted with super-user permission during the
process of installing this package.

Do you want to continue with the installation
of <LuOX23RT> [y,n,?]
```

15. Type **y** and press **Return**

```
Installing Orbix 2.3c02 Runtime for AnyMedia
EM R1,7 as <LuOX23RT>

## Installing part 1 of 1.
```

```
<files list>
.............
[ verifying class <none> ]
<files list>
......
[ verifying class <bin> ]
<files list>
......
[ verifying class <cfg> ]
<files list>
......
[ verifying class <lib> ]
## Executing postinstall script.
You have the installation logfile in
/tmp/EM_Install_LuOX23RT.log
Installation of <LuOX23RT> was successful.
```

OrbixNames 1.1c installation

```
Processing package instance <LuOXNS> from
</home/bldr17/LOAD_36.1.1/build/lucent/
AnyMediaEMR1.7>
OrbixNames 1.1c Runtime for AnyMedia EM R1;7
(sparc-solaris) Version 1.1c Run-Time
OK, No previous package LuOXNSRT have been found.
Package <LuOX23RT> OrbixMT Version 2.3c02MT
Run-Time have been found in
/opt/lucent/OrbixMT_2.3c2
Here is a list of your partitions and the free
space in each of them:
```

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c0t0d0s0	143927	36990	92545	29%	/
/dev/dsk/c0t0d0s4	625262	401569	167420	71%	/usr
/dev/dsk/c0t0d0s3	96455	11326	75484	14%	/var
/dev/dsk/c0t0d0s6	6591133	4355134	2170088	67%	/homelocal
/dev/dsk/c0t0d0s5	240399	8597	207763	4%	/var/cache
swap	1201416	64	1201352	1%	/tmp
masstc1:/export1/bld/2/bldr17	51014048	49193336	1480632	98%	/home/bldr17
masstc1:/export1/bld/2/syi_pl	51014048	49193336	1480632	98%	/home/syi_pl

```
Where should OrbixNames be installed?
[/opt/lucent/OrbixNames1.1c][?,q]
```

16. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Multi-threaded Orbix installation detected, is
this correct? [y] [y,n,?]
```

17. Type **y** and press **Return**.

```
Select owner and group for package files.
NBR  USER:GROUP
  1 halt:other
  2 root:other
  3 smtp:root
  4 ver1:staff
Enter selection [?,??,q]:
```

18. Type **4** and press **Return**.

```
User: <users> and Group: <group>, have been se
lected
Using </> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.
This package contains scripts which will be ex
ecuted with super-user permission during the
process of installing this package.
Do you want to continue with the installation
of <LuOXNS> [y,n,?]
```

19. Type **y** and press **Return**.

```
Installing OrbixNames 1.1c Runtime for AnyMedia
EM R1,7 as <LuOXNSRT>
## Installing part 1 of 1.
[ verifying class <names> ]
```

```
<files list>
.............
[ verifying class <bin> ]
<files list>
.............
[ verifying class <lib> ]
## Executing postinstall script.
-------------------------------------------
Okay, OrbixNames is now installed.
You have the installation logfile in
/tmp/EM_Install_LuOXNSRT.log
Installation of <LuOXNSRT> was successful.
```

ObjectStore 5.1 installation

```
Processing package instance <LuOSRT> from
</home/bldr17/LOAD_36.1.1/build/lucent/
AnyMediaEMR1.7>
ObjectStore 5.1_SP2 Runtime for AnyMedia EM R1,7
(sparc-solaris) 5.1_SP2 Run-Time
OK, No previous package LuOXNSRT have been found.
Here is a list of your partitions and the free
space in each of them:
```

Filesystem	kbytes	used	avail	capacity	Mounted on
/dev/dsk/c0t0d0s0	143927	36990	92545	29%	/
/dev/dsk/c0t0d0s4	625262	401569	167420	71%	/usr
/dev/dsk/c0t0d0s3	96455	11359	75451	14%	/var
/dev/dsk/c0t0d0s6	6591133	4383673	2141549	68%	/homelocal
/dev/dsk/c0t0d0s5	240399	8597	207763	4%	/var/cache
swap	1201288	72	1201216	1%	/tmp
masstc1:/export1/bld/2/bldr17	51014048	49193336	1480632	98%	/home/bldr17
masstc1:/export1/bld/2/syi_pl	51014048	49193336	1480632	98%	/home/syi_pl

```
Enter install directory [/opt/lucent/OS51_SP2]
[?,q]
```

20. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Using </> as the package base directory.
## Processing package information.
## Processing system information.
```

```
## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.

The following files are being installed with
setuid and/or setgid permissions: /opt/lucent
/OS51_SP2/ostore/lib/oscminit <setuid root>

Do you want to install these as setuid/setgid
files [y,n,?,q]
```

21. Type **y** and press **Return**.

```
This package contains scripts which will be ex
ecuted with super-user permission during the
process of installing this package.

Do you want to continue with the installation
of <LuOSRT> [y,n,?]
```

22. Type **y** and press **Return**.

```
Installing ObjectStore 5.0_SP3 Runtime for Any
Media NB-EM R1,7 as <LuOSRT>

## Installing part 1 of 1.

<files list>
.............

[ verifying class <none> ]

## Executing postinstall script.

*****************************************

 * Remember execute "osconfig" to set the
environment *
*****************************************

 You have the installation logfile in
/tmp/EM_Install_LuOSRT.log

Installation of <LuOSRT> was successful.
```

ObjectStore configuration (I)

```
Object Store configuration

The default copy of ObjectStore to configure is
in /opt/lucent/OS51_SP2/ostore.

Is this the copy that you want to configure?
[yes]
```

23. Press **Return**.

```
ObjectStore includes shared libraries. For Ob
jectStore applications and utilities to work,
the dynamic linker must be able to find them.

The recommended arrangement is to have symbolic
links in /usr/lib to the shared libraries.

If you choose not to make these links, then you
will have to instruct all ObjectStore users to
add /opt/lucent/OS51_SP2/ostore/lib to their
LD_LIBRARY_PATH environment variable.

Do you want to create links to ObjectStore li
braries in /usr/lib? [yes]
```

24. Press **Return**.

```
Since you have requested a File-database con
figuration, you must give a pathname for the
transaction log file. Where do you want to put
the transaction log?
```

25. Type **/opt/lucent/transaction.log** and press **Return**.

```
You have configured this machine to run an Ob
jectStore server. The server's transaction log
is in /opt/lucent/transaction.log.

Do you want to proceed? [yes]
```

26. Press **Return**.

```
Writing configuration files and initializing
the server, please wait...

000613 091747 ObjectStore Release 5.1 Service
Pack 2 Database Server

The ObjectStore server is running.

ObjectStore includes a server daemon which must
be running for any application to access an
ObjectStore database.
It is recommended that you auto-start the daemon
via commands in your operating system startup
scripts. If you do not configure automatic
startup, you will have to start the server
daemon by hand, or re-run this utility to
configure auto-start.
```

```
Would you like to configure automatic server
startup and shutdown? [yes]
```

27. Press **Return**.

```
Successfully created /etc/rc2.d/S80ostore4.

Successfully created link from /etc/rc2.d/
K80ostore4 to /etc/rc2.d/S80ostore4.

Note that you must manually remove or edit
existing ObjectStore R3 scripts in /etc/rc2.d in
some situations:

To run only R4 clients or R3 file database
clients, remove all R3 scripts in /etc/rc2.d.

To run all R4 clients and R3 clients, including
R3 rawfs clients, edit existing R3 scripts in
/etc/rc2.d to run only the R3 Directory Manager,
but not the R3 Server.

To run both R3 and R4 clients with separate R3
and R4 Servers, see the documentation on editing
your OS_ROOTDIR/etc/ports file.

This script will now verify the installation:

The ObjectStore Server daemon process is
accessible. Schema databases are accessible.

The cache manager launcher for release 4
(/homelocal/new/OS51_SP2/ostore/lib/oscminit)
has correct modes and ownership.
ObjectStore configuration completed.
```

2.2.1.1.2 Installation of the common packages

Complete the following procedure to install the common packages:

Step	Procedure

1. Go to the directory where the installation script is placed on the CD-ROM number one.

2. Type **./install_AMEM_gen** and press **Return**.

```
AnyMedia EM R1,7 installation
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**Pre-requisites**
```

1.- Before attempting to install the application, please,read the readme.txt file.

2.- AnyMedia EM R1,7 runs on SUN SPARC Solaris 2 computers running Solaris 2.6 plus security and Y2000 and packs 105490-07, 105568-13, 105210-19, 106040-12, 105633-21, 106409-01, 105181-15, 105669-07, 105284-25 patches recommended by SUN and 106255-01 patch.

3.- TCP ports:
The following ports MUST be available in order to succesfully run the AnyMedia EM:
*** 1570: Orbix daemon uses the TCP port 1570 in order to wait for incoming connections that use the Orbix protocol.**
*** 1591 to 1641: As Corba servers are activated by the Orbix daemon, they are assigned a port so that clients can communicate with it. It is essential that these ports are not used by any process on the SAME SUBNET DOMAIN.**

4.- The install_AMEM script runs on K-shell <ksh> environment.

5.- At least the system environment variable PATH MUST include the paths "/sr/bin", "/usr/sbin" and "/uas/ucb" (for instance, "export PATH=$PATH:/usr/bin/:/usr/sbin:/usr/ucb").

6.- The time zone MUST be the same for the Any Media Client <GUI>, LUMOS and Network Element. This parameter is needed for installing the Any Media Client.

****

Do you like to continue [y,n,?,q]

3. Type **y** and press **Return** to continue or type **n** or **q** and press **Return** to exit.

```
AnyMedia NB EM R1.7 installation
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Please, choose the installation mode
1 ADM  <Administration package installation>
2 GUI <Client package installation>
Enter selection [?,??,q]:
```

4. Type **1** and press **Return**

```
The package <LuLUMRT> is already installed on
the system.
The package <LuRWRT> is already installed on
the system.
The package <LuOX23RT> is already installed on
the system.
The package <LuOXNSRT> is already installed on
the system.
The package <LuOSRT> is already installed on
the system.
##The package/s were already installed in the
System.
```

ObjectStore configuration (II)

```
Object Store configuration
The default copy of ObjectStore to configure is
in /opt/lucent/OS51_SP2/ostore.
Is this the copy that you want to configure?
[yes]
```

5. Press **Return**.

```
ObjectStore includes shared libraries. For Ob
jectStore applications and utilities to work,
the dynamic linker must be able to find them.
The recommended arrangement is to have symbolic
links in /usr/lib to the shared libraries.
```

If you choose not to make these links, then you will have to instruct all ObjectStore users to add /opt/lucent/OS51_SP2/ostore/lib to their LD_LIBRARY_PATH environment variable.

Warning: ObjectStore libraries already exist in /usr/lib.

If you choose not to make links in /usr/lib for the new libraries, ObjectStore users may incorrectly link with old libraries.

Do you want to create links to ObjectStore li braries in /usr/lib? [yes]

6. Press **Return**.

You have configured this machine to run an Ob jectStore server. The server's transaction log is in /opt/lucent/transaction.log.

Do you want to proceed? [yes]

7. Press **Return**.

Writing configuration files and initializing the server, please wait...

000529 170809 ObjectStore Release 5.1 Service Pack 2 Database Server

The ObjectStore server is running.

ObjectStore includes a server daemon which must be running for any application to access an ObjectStore database.
It is recommended that you auto-start the daemon via commands in your operating system startup scripts. If you do not configure automatic startup, you will have to start the server daemon by hand,or re-run this utility to configure auto-start.

What you like to configure automatic server startup and shutdown?[yes]

8. Press **Return**.

Successfully created /etc/rc2.d/S80ostore4.

```
Successfully created link from /etc/rc2.d/
K80ostore4 to /etc/rc2.d/S80ostore4.

Note that you must manually remove or edit
existing ObjectStore R3 scripts in /etc/rc2.d in
some situations:

To run only R4 clients or R3 file database
clients, remove all R3 scripts in /etc/rc2.d.

To run all R4 clients and R3 clients, including
R3 rawfs clients, edit existing R3 scripts in
/etc/rc2.d to run only the R3 Directory Manager,
but not the R3 Server.

To run both R3 and R4 clients with separate R3
and R4 Servers, see the documentation on editing
your OS_ROOTDIR/etc/ports file.

This script will now verify the installation:

The ObjectStore Server daemon process is
accessible.Schema databases are accessible.

The cache manager launcher for release 4
(/opt/lucent/OS51_SP2/ostore/lib/oscminit) has
correct modes and ownership.

ObjectStore configuration completed.


## Packages to install:  LuSysAdm LuAM LuBack
LuFiBrow LuNER LuNBI LuLogg LuPerf LuPerCo
LuNeED LuSec LuShelf LuSysED LuTrap LuPerTr
LuTeSc.
```

System Administration installation

```
Processing package instance <LuSysAdm> from
</home/bldr17/LOAD_36.1.1/build/lucent/
AnyMediaEMR1.7>

AnyMedia Element Manager System Administration
Release 1.7 (Administration)

(sparc) LuSysAdm_36_1.1
**************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**************************************
```

```
OK, No previous package LuSysAdm have been
found.

Package <LuOX23RT> OrbixMT Version 2.3c02MT
Run-Time have been found in /opt/lucent/
OrbixMT_2.3c2

Package <LuOXNSRT> OrbixNames Version 1.1c
Run-Time have been found in /opt/lucent/
OrbixNames1.1c

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2

Package <LuLUMRT> Lumos Build 3.0 run-time have
been found in /opt/lucent/LUMOS

Package <LuRWRT> RogueWave Tools and Threads
std0130u thr0130u tls0710u tpr0112u have been
found in /opt/lucent/rw


Where should System Admin be installed?
[/opt/lucent/AnyMediaEM_R1.7] [?,q]
```

9. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
The installation path selected for AnyMedia EM
R1.7 is /opt/lucent/AnyMediaEM_R1.7.

NBR  USER:GROUP

  1 halt:other

  2 root:other

  3 smtp:root

  4 ver1:staff

Enter selection [?,??,q]:
```

10. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected

***Boot processes***


Do you like install the SystemAdmin process on
the system boot [y,n,?,q]
```

11. Type **y** and press **Return**.

```
Clean-up tasks for the AnyMedia-EM system will
be executed every day at 2.00 AM. Do you like
change it [y,n,?,q]
```

12. Type **n** and press **Return**.

```
Using </> as the package base directory.

## Processing package information.

## Processing system information.
16 package pathnames are already properly
installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.

Do you want to continue with the installation
of <LuSysAdm> [y,n,?]
```

13. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager System
Administration Release 1.7 (Administration) as
<LuSysAdm>

## Installing part 1 of 1.

<files list>
.............

[ verifying class <common> ]

## Executing postinstall script.


*** WARNING: The installation process has not
permissions to change the owner and group of the
path containing the Object Store transaction.log
file. If you want that AnyMedia automayicaly
manages this file, the owner and group of its
path (direcory and all sub-directories) must be
changed to ver1 and to staff respectively.
```

```
[ s1224: OrbixNames (Release 1.1) ]
[ s1369: OrbixOTM package (Release 1.0) ]

Checking AnyMedia EM R1.7 naming contexts
Creating data bases
Getting the AnyMedia installation path... OK.
Starting SysAdmDbPopulate process...
Getting SystemAdmin Database path... OK.
Creating SystemAdmin Database... OK

Population successful.
1190 Killed
orbixd daemon pid=1190 have been killed. Was
mine.
1196 Killed
ns daemon pid=1196 have been killed. Was mine.
*****************************************
* Once the installation process if finished *
* Please boot the machine and
* Execute ". AnyMediaEM.sh" to set the
environment *
*****************************************
You have the installation logfile in /opt/
lucent/AnyMediaEM_R1.7/tmp/EM_Install.log

Installation of <LuSysAdm> was successful.'
```

Alarm Management installation

```
Processing package instance <LuAM> from </
homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Alarms Release 1.7
(Administration) (sparc) LuAM_36_1.1


************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
 ************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7
OK, No previous package LuAM have been found.
Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuAM> [y,n,?]
```

14. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Alarms
Release 1.7 (Administration) as <LuAM>


## Installing part 1 of 1.
<files list>
.............
[ verifying class <common> ]
```

```
## Executing postinstall script.

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2

Package <LuOX23RT> OrbixMT Version 2.3c02MT
Run-Time have been found in /opt/lucent/
OrbixMT_2.3c2


Creating data bases

Starting AMDbPopulate process...

Getting the AnyMedia installation path...OK

Getting Alarm data base path... OK

Creating Alarm Data Base...

exit OK

2242 Killed

orbixd daemon pid=2242 have been killed. Was mine.


You have the installation logfile in
/tmp/EM_Install_LuAM.log

Installation of <LuAM> was successful.
```

Backup installation

```
Processing package instance <LuBack> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Backup Release 1.7
(Administration) (sparc) LuBack_36_1.1


*****************************************

 * AnyMedia Element Manager *

 * (c) 1999-Lucent Technologies *

*****************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuBack have been found.
```

```
Do you like install the Backup process as a cron
[y,n,?,q] n
```

15. Type **n** and press **Return**.

```
Do you like install the Archive process as a
cron [y,n,?,q]
```

16. Type **n** and press **Return**.

```
Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.


The following files are already installed on the
system and are being used by another package:

* /opt/lucent/AnyMediaEM_R1.7/Backup <attribute
change only>


* - conflict with a file which does not belong to
any package.


Do you want to install these conflicting files
[y,n,?,q]
```

17. Type **y** and press **Return**.

```
## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuBack> [y,n,?]
```

18. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Backup
Release 1.7 (Administration) as <LuBack>

## Installing part 1 of 1.

<files list>
.............

[ verifying class <common> ]

## Executing postinstall script.


You have the installation logfile in
/tmp/EM_Install_LuBack.log

Installation of <LuBack> was successful.
```

File Browser installation

```
Processing package instance <LuFiBrow> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>

AnyMedia Element Manager File Browser Release 1.7
(administration) (sparc) LuFiBrow_36_1.1


*******************************************

 * AnyMedia Element Manager *

 * (c) 1999-Lucent Technologies *

 *******************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuFiBrow have been found.

Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.

## Processing package information.

## Processing system information.

 1 package pathname is already properly
 installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.
```

```
Installing AnyMedia Element Manager File Browser
Release 1.7 (administration) as <LuFiBrow>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/FileBrowser/bin/
FileBrowser

[ verifying class <common> ]

Installation of <LuFiBrow> was successful.
```

Network Registry installation

```
Processing package instance <LuNER> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Network Register Element Manager
Release 1.7 (Administration)(sparc) LuNER_36_1.1


*****************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
*****************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuNER have been found.

Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.
```

```
Do you want to continue with the installation of
<LuNER> [y,n,?]
```

19. Type **y** and press **Return**.

```
Installing AnyMedia Network Register Element
Manager Release 1.7 (Administration) as <LuNER>


## Installing part 1 of 1.

<files list>
.............

[ verifying class <common> ]

## Executing postinstall script.

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2

Oject Store path set to /opt/lucent/OS51_SP2
ostore

Package <LuOX23RT> OrbixMT Version 2.3c02MT
Run-Time have been found in /opt/lucent/
OrbixMT_2.3c2


Creating data bases

Starting CreateNER_db process...

Getting the AnyMedia installation path...OK

Getting NER data base path

Creating NER data base...OK

exit OK

2438 Killed

orbixd daemon pid=2438 have been killed. Was mine.


You have the installation logfile in
/tmp/EM_Install_LuNER.log


Installation of <LuNER> was successful.
```

Northbound Interface installation

```
Processing package instance <LuNBI> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia North Bound Element Manager Release 1.7
(Administration) (sparc) LuNBI_36_1.1


*******************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
*******************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7
OK, No previous package LuNBI have been found.
Using </opt/lucent/AnyMediaEM_R1.7> as th
package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuNBI> [y,n,?]
```

20. Type **y** and press **Return**.

```
Installing AnyMedia North Bound Element Manager
Release 1.7 (Administration) as <LuNBI>


## Installing part 1 of 1.
/opt/lucent/AnyMediaEM_R1.7/NBI/bin/PassThrough
/opt/lucent/AnyMediaEM_R1.7/NBI/bin/
PassThroughConfig
```

```
/opt/lucent/AnyMediaEM_R1.7/NBI/cfg/
NBIDomains.cfg

/opt/lucent/AnyMediaEM_R1.7/NBI/cfg/NBILog.log

[ verifying class <common> ]

## Executing postinstall script.


Installation of <LuNBI> was successful.
```

Log Management installation

```
Processing package instance <LuLogg> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Logging Release 1.7
(Administration)(sparc) LuLogg_36_1.1


*******************************************

 * AnyMedia Element Manager *

 * (c) 1999-Lucent Technologies *

*******************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuLogg have been found.

Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.

## Processing package information.

## Processing system information.

 1 package pathname is already properly
 installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


Installing AnyMedia Element Manager Logging
Release 1.7 (Administration) as <LuLogg>
```

```
## Installing part 1 of 1.
/opt/lucent/AnyMediaEM_R1.7/Logging/bin/
LogReader
/opt/lucent/AnyMediaEM_R1.7/Logging/bin/
LogWriter
/opt/lucent/AnyMediaEM_R1.7/Logging/cfg/
Logging.cfg
[ verifying class <common> ]


Installation of <LuLogg> was successful.
```

Performance Logging installation

```
Processing package instance <LuPerf> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Performace Release 1.7
(Administration)(sparc) LuPerf_36_1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7
Package <LuLogg> Loggin LuLogg_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7
OK, No previous package LuPerf have been found.
Using </> as the package base directory.
## Processing package information.
## Processing system information.
 1 package pathname is already properly
 installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.
```

```
Installing AnyMedia Element Manager Performace
Release 1.7 (Administration) as <LuPerf>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/Logging
Performance/bin/LogWriter <symbolic link>

/opt/lucent/AnyMediaEM_R1.7/
LoggingPerformance/cfg/Logging.cfg

[ verifying class <common> ]


Installation of <LuPerf> was successful.
```

Performance Monitoring installation

```
Processing package instance <LuPerCo> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Performan Monitorin
Release 1.7 (Administration)(sparc)LuPerCo_36_1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuPerCo have been found.

Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.

## Processing package information.

## Processing system information.

 1 package pathname is already properly
 installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.
```

```
This package contains scripts which will be
executed with super-user permission during the
process of installing this package.

Do you want to continue with the installation of
<LuPerCo> [y,n,?]
```

21. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Performan
Monitorin Release 1.7 (Administration) as
<LuPerCo>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/PerformanceConfig/
bin/PCDbCreate

/opt/lucent/AnyMediaEM_R1.7/PerformanceConfig
/bin/StatConfig

/opt/lucent/AnyMediaEM_R1.7/PerformanceConfig/
db/PCDSchema.adb

[ verifying class <common> ]

## Executing postinstall script.

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2

Object Store path set to LuOSRT:ObjectStore:
Release 5.1 Service Pack 3:5.1_SP2
Run-Time:/bin:/lib:osversion:

Package <LuOX23RT> OrbixMT Version 2.3c02MT
Run-Time have been found in
/opt/lucent/OrbixMT_2.3c2


Creating data bases

Starting PCDbCreate process...

exit OK

2692 Killed

orbixd daemon pid=2692 have been killed. Was mine.


You have the installation logfile in /tmp/
EM_Install_LuPerCo.log


Installation of <LuPerCo> was successful.
```

NE Event Distributor installation

```
Processing package instance <LuNeED> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Auxiliar Even Dist.
Release 1.7 (administration)(sparc) LuNeED_36_1.1


*********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
 *********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7
OK, No previous package LuNeED have been found.
Using </> as the package base directory.
## Processing package information.
## Processing system information.
 1 package pathname is already properly
 installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.


Installing AnyMedia Element Manager Auxiliar Even
Dist. Release 1.7 (administration) as <LuNeED>


## Installing part 1 of 1.
<files list>
.............
[ verifying class <common> ]


Installation of <LuNeED> was successful.


Processing package instance <LuSec> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>
```

Security installation

```
AnyMedia Element Manager Security Release 1.7
(Administration)(sparc) LuSec_36_1.1


*********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
*********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7
OK, No previous package LuSec have been found.
Using </opt/lucent/AnyMediaEM_R1.7> as the
package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuSec> [y,n,?] y
```

22. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Security
Release 1.7 (Administration) as <LuSec>


## Installing part 1 of 1.
<files list>
.............
[ verifying class <common> ]
## Executing postinstall script.
Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2
```

```
Oject Store path set to LuOSRT:ObjectStore:
Release 5.1 Service Pack 3:5.1_SP2
Run-Time:/bin:/lib:osversion:

Package <LuOX23RT> OrbixMT Version 2.3c02MT
Run-Time have been found in /opt/lucent/
OrbixMT_2.3c2


Creating data bases

OK

Creating Database

2839 Killed

orbixd daemon pid=2839 have been killed. Was mine.


You have the installation logfile in /tmp/
EM_Install_LuSec.log


Installation of <LuSec> was successful.
```

Combined Shelf installation

```
Processing package instance <LuShelf> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Shelf Release 1.7
(Administration)(sparc) LuShelf_36_1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuShelf have been found.

Using </> as the package base directory.

## Processing package information.

## Processing system information.
```

```
 1 package pathname is already properly
 installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


Installing AnyMedia Element Manager Shelf
Release 1.7 (Administration) as <LuShelf>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/CombinedShelf/
bin/NECombined

/opt/lucent/AnyMediaEM_R1.7/CombinedShelf/
cfg/CombinedPacks.cfg

/opt/lucent/AnyMediaEM_R1.7/CombinedShelf/
cfg/CombinedShelves.cfg

[ verifying class <common> ]


Installation of <LuShelf> was successful.
```

General Event Distributor installation

```
Processing package instance <LuSysED> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager System Even Dist.
Release 1.7(administration) (sparc) LuSysED_36_1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuSysED have been found.

Using </> as the package base directory.

## Processing package information.
```

```
## Processing system information.
 1 package pathname is already properly
 installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.

Installing AnyMedia Element Manager System Even
Dist. Release 1.7 (administration) as <LuSysED>

## Installing part 1 of 1.
<files list>
.............
[ verifying class <common> ]

Installation of <LuSysED> was successful.
```

Trap Dispatcher installation

```
Processing package instance <LuTrap> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>

AnyMedia Element Manager Trap Dispacher Release 1.7
(Administration)(sparc) LuTrap_36_1.1

 ********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
 ********************************************

Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7
OK, No previous package LuTrap have been found.
Using </> as the package base directory.
## Processing package information.
## Processing system information.
```

```
 1 package pathname is already properly
 installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


The following files are being installed with
setuid and/or setgid permissions:

/opt/lucent/AnyMediaEM_R1.7/TrapDispatcher/
bin/TrapDispatcher <setuid root>


Do you want to install these as setuid/setgid
files [y,n,?,q]
```

23. Type **y** and press **Return**.

```
This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuTrap> [y,n,?]
```

24. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Trap
Dispacher Release 1.7 (Administration) as <LuTrap>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/TrapDispatcher/
bin/TrapDispatcher

[ verifying class <common> ]

## Executing postinstall script.

Package <LuOXNSRT> OrbixNames Version 1.1c Run-
Time have been found in /opt/lucent/OrbixNames1.1c

Package <LuOX23RT> OrbixMT Version 2.3c02MT Run-
Time have been found in /opt/lucent/OrbixMT_2.3c2

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time have
been found in /opt/lucent/OS51_SP2
```

```
ln: cannot create /usr/lib/libos.so.sun.4.0:
File exists

ln: cannot create /usr/lib/liboscol.so.sun.4.0:
File exists

ln: cannot create /usr/lib/libosqry.so.sun.4.0:
File exists

ln: cannot create /usr/lib/libosthr.so.sun.4.0:
File exists

Package <LuRWRT> RogueWave Tools and Threads
std0130u thr0130u tls0710u tpr0112u have been
found in /opt/lucent/rw


 You have the installation logfile in /tmp
/EM_Install.log_2937


Installation of <LuTrap> was successful.
```

Performance Translator installation

```
Processing package instance <LuPerTr> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Performance Translator
Release 1.7(administration) (sparc) LuPerTr_36_1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuPerTr have been found.

Using </> as the package base directory.

## Processing package information.

## Processing system information.

 1 package pathname is already properly
 installed.

## Verifying disk space requirements.
```

```
## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuPerTr> [y,n,?]
```

25. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Performance
Translator Release 1.7 (administration) as
<LuPerTr>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/
PerformanceTranslator/bin/ReportTranslator

/opt/lucent/AnyMediaEM_R1.7/
PerformanceTranslator/cfg/
PerformanceTranslator.cfg

[ verifying class <common> ]

## Executing postinstall script.


Installation of <LuPerTr> was successful.
```

Test Scheduler installation

```
Processing package instance <LuTeSc> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager TestScheduler
Release 1.7 (administration)(sparc) LuTeSc_36_1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************
```

```
Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

OK, No previous package LuTeSc have been found.

Using </> as the package base directory.

## Processing package information.

## Processing system information.

 1 package pathname is already properly
 installed.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


Installing AnyMedia Element Manager TestScheduler
Release 1.7 (administration) as <LuTeSc>


## Installing part 1 of 1.

/opt/lucent/AnyMediaEM_R1.7/TestScheduler/bin/
TestScheduler

/opt/lucent/AnyMediaEM_R1.7/TestScheduler/cfg/
TestScheduler.cfg

[ verifying class <common> ]


Installation of <LuTeSc> was successful.


Installation of AnyMedia EM R1.7 was successful
<ADM side installation>
```

2.2.1.1.3 Installation of the telephony R1.7 agent (optional)

Complete the following procedure to install the telephony R1.7 agent.

Step	Procedure

1. Go to the directory where the installation script is placed (CD-ROM 2 of 4).

2. Type **./install_AMEM_nb** and press **Return**.

```
AnyMedia EM R1,7 installation
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**Pre-requisites**

1.- Before attempting to install the
application, please,read the readme.txt file.

2.- AnyMedia EM R1,7 runs on SUN SPARC
Solaris 2 computers running Solaris 2.6 plus
security and Y2000 and packs 105490-07,
105568-13, 105210-19, 106040-12, 105633-21,
106409-01, 105181-15, 105669-07, 105284-25
patches recommended by SUN and 106255-01 patch.

3.- TCP ports:
The following ports MUST be available in order
to succesfully run the AnyMedia EM:
* 1570: Orbix daemon uses the TCP port 1570 in
order to wait for incoming connections that use
the Orbix protocol.
* 1591 to 1641: As Corba servers are activated
by the Orbix daemon, they are assigned a port so
that clients can communicate with it. It is
essential that these ports are not used by any
process on the SAME SUBNET DOMAIN.

4.- The install_AMEM script runs on K-shell
<ksh> environment.

5.- At least the system environment variable
PATH MUST include the paths "/sr/bin",
"/usr/sbin" and "/uas/ucb" (for instance,
"export PATH=$PATH:/usr/bin/:/usr/sbin:/usr/ucb").

6.- The time zone MUST be the same for the Any
Media Client <GUI>, LUMOS and Network Element.
This parameter is needed for installing the Any
Media Client.
```

```
**********

Do you like to continue [y,n,?,q]
```

3. Type **y** and press **Return** to continue or type **n** or **q** and press **Return** to exit.

```
AnyMedia NB EM R1,7 installation

Please, choose one or more Band mode separated
by blank


1  LuAMNB17       <NarrowBand R1.7 installation>
>

Enter selection [?,??,q]:
```

4. Type **1** and press **Return**

```
## Packages to install:  LuAMNB17
```

NE telephony support for R1.7 installation

```
Processing package instance <LuAMNB17> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia NB Element Manager Release 1.7 for NE
release 17 (sparc) LuAMNB17_36.1.1


*******************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
*******************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

AnyMedia EM R1.7 path=/opt/lucent/
AnyMediaEM_R1.7

Package <LuAM> Alarms LuAM_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7

Package <LuNBI> NorthBound LuNBI_36_1.1 have
been found in /opt/lucent/AnyMediaEM_R1.7
```

```
Package <LuNER> NER LuNER_36_1.1 have been found
in /opt/lucent/AnyMediaEM_R1.7

Package <LuNeED> NetEvenDist LuNeED_36_1.1 have
been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuSec> Security LuSec_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7

Package <LuShelf> ConbinedShelf LuShelf_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuSysED> SystemEventDist LuSysED_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuLUMRT> Lumos Build 3.0 run-time have
been found in /opt/lucent/LUMOS

OK, No previous package LuAMNB17 have been
found.

Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

WARNING:

The / filesystem has 185076 free blocks. The
current installation requires 378210 blocks,
which includes a required 150 block buffer for
open deleted files. 193134 more blocks are
needed.

Do you want to continue with the installation of
<LuAMNB17> [y,n,?]
```

5. Type **Y** and press **Return**

```
## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.

Do you want to continue with the installation of
<LuAMNB17> [y,n,?]
```

6. Type **Y** and press **Return**

```
Installing AnyMedia NB Element Manager
Release 1.7 for NE release 17 as <LuAMNB17>


## Installing part 1 of 1.

<files list>
.............

[ verifying class <common> ]

## Executing postinstall script.

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2


Creating data bases

You have the installation logfile in
/tmp/EM_Install_LuAMNB17.log


Installation of <LuAMNB17> was successful.


## The package < LuAMNB17> is not installed in
the system.

## Please try ../install_AMEM again and install
the package < LuAMNB17>.

## to complete the installation.
```

NOTE:
The last message is an error and can be ignored.

2.2.1.1.4 Installation of the data R1.1.2 agent (optional)

Complete the following procedure to install the data R1.1.2 agent.

Step	Procedure
1.	Go to the directory where the installation script is placed (on CD-ROM 3 of 4).
2.	Type **./install_AMEM_bb** and press **Return**.

```
AnyMedia EM R1,7 installation
CopyRight (c) 2000 Lucent Technologies, Inc.
All Rights Reserved

**Pre-requisites**
```

```
1.- Before attempting to install the
application, please,read the readme.txt file.

2.- AnyMedia EM R1,7 runs on SUN SPARC
Solaris 2 computers running Solaris 2.6 plus
security and Y2000 and packs 105490-07,
105568-13, 105210-19, 106040-12, 105633-21,
106409-01, 105181-15, 105669-07, 105284-25
patches recommended by SUN and 106255-01 patch.

3.- TCP ports:
The following ports MUST be available in order
to succesfully run the AnyMedia EM:
* 1570: Orbix daemon uses the TCP port 1570 in
order to wait for incoming connections that use
the Orbix protocol.
* 1591 to 1641: As Corba servers are activated
by the Orbix daemon, they are assigned a port so
that clients can communicate with it. It is
essential that these ports are not used by any
process on the SAME SUBNET DOMAIN.

4.- The install_AMEM script runs on K-shell
<ksh> environment.

5.- At least the system environment variable
PATH MUST include the paths "/sr/bin",
"/usr/sbin" and "/uas/ucb" (for instance,
"export PATH=$PATH:/usr/bin/:/usr/sbin:/usr/ucb").

6.- The time zone MUST be the same for the Any
Media Client <GUI>, LUMOS and Network Element.
This parameter is needed for installing the Any
Media Client.

******************

Do you like to continue [y,n,?,q]
```

3. Type **y** and press **Return** to continue or type **n** or **q** and press **Return** to exit.

```
AnyMedia NB EM R1,7 installation

Please, choose one or more Band mode separated
by blank


1 LuAMBB112     <BroadBand  R1.1.2 installation>

2 LuAMBB14      <BroadBand  R1.4   installation>
```

```
Enter selection [?,??,q]:
```

4. Type **1** and press **Return**

```
## Packages to install:  LuAMBB112
```

NE Data support for R1.1.2 installation

```
Processing package instance <LuAMBB112> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia BB Element Manager Release 1.7 for NE
release 112 (sparc) LuAMBB112_36.1.1


**********************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

AnyMedia EM R1.7 path=/opt/lucent/
AnyMediaEM_R1.7

Package <LuAM> Alarms LuAM_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7

Package <LuNER> NER LuNER_36_1.1 have been found
in /opt/lucent/AnyMediaEM_R1.7

Package <LuNeED> NetEvenDist LuNeED_36_1.1 have
been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuSec> Security LuSec_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7

Package <LuShelf> ConbinedShelf LuShelf_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuSysED> SystemEventDist LuSysED_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuTrap> SystemEventDist LuTrap_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuLUMRT> Lumos Build 3.0 run-time have
been found in /opt/lucent/LUMOS
```

```
OK, No previous package LuAMBB112 have been
found.

Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

WARNING:

The / filesystem has 185076 free blocks. The
current installation requires 203168 blocks, which
includes a required 150 block buffer for open
deleted files. 18092 more blocks are needed.


Do you want to continue with the installation of
<LuAMBB112> [y,n,?]
```

5. Type **Y** and press **Return**

```
## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuAMBB112> [y,n,?]
```

6. Type **Y** and press **Return**

```
Installing AnyMedia BB Element Manager Release
1.7 for NE release 112 as <LuAMBB112>


## Installing part 1 of 1.

<files list>
.............

[ verifying class <common> ]

## Executing postinstall script.

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2
```

```
Object Store path set to LuOSRT:ObjectStore:
Release 5.1 Service Pack 3:5.1_SP2
Run-Time:/bin:/lib:osversion:


Creating data bases


You have the installation logfile in
/tmp/EM_Install_LuAMBB112.log


Installation of <LuAMBB112> was successful.


## The package < LuAMBB112> is not installed in
the system.

## Please try ../install_AMEM again and install
the package < LuAMBB112>.

## to complete the installation.
```

NOTE:
The last message is an error and can be ignored.

2.2.1.1.5 Installation of the data R1.4 agent (optional)

Complete the following procedure to install the data R1.4 agent.

Step	Procedure

1. Go to the directory where the installation script is placed (CD-ROM 3 of 4).

2. Type **./install_AMEM_bb** and press **Return**.

```
AnyMedia EM R1,7 installation
CopyRight (c) 2000 Lucent Technologies, Inc.
All Rights Reserved

**Pre-requisites**

1.- Before attempting to install the
application, please,read the readme.txt file.

2.- AnyMedia EM R1,7 runs on SUN SPARC
Solaris 2 computers running Solaris 2.6 plus
security and Y2000 and packs 105490-07,
```

```
105568-13, 105210-19, 106040-12, 105633-21,
106409-01, 105181-15, 105669-07, 105284-25
patches recommended by SUN and 106255-01 patch.

3.- TCP ports:
The following ports MUST be available in order
to succesfully run the AnyMedia EM:
* 1570: Orbix daemon uses the TCP port 1570 in
order to wait for incoming connections that use
the Orbix protocol.
* 1591 to 1641: As Corba servers are activated
by the Orbix daemon, they are assigned a port so
that clients can communicate with it. It is
essential that these ports are not used by any
process on the SAME SUBNET DOMAIN.

4.- The install_AMEM script runs on K-shell
<ksh> environment.

5.- At least the system environment variable
PATH MUST include the paths "/sr/bin",
"/usr/sbin" and "/uas/ucb" (for instance,
"export PATH=$PATH:/usr/bin/:/usr/sbin:/usr/ucb").

6.- The time zone MUST be the same for the Any
Media Client <GUI>, LUMOS and Network Element.
This parameter is needed for installing the Any
Media Client.

******************

Do you like to continue [y,n,?,q]
```

3. Type **y** and press **Return** to continue or type **n** or **q** and press **Return** to exit.

```
AnyMedia NB EM R1,7 installation

Please, choose one or more Band mode separated
by blank


1 LuAMBB112     <BroadBand  R1.1.2 installation>

2 LuAMBB14      <BroadBand  R1.4   installation>


Enter selection [?,??,q]:
```

4. Type **2** and press **Return**

```
## Packages to install:  LuAMBB14
```

NE Data support for R1.4 installation

```
Processing package instance <LuAMBB14> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia BB Element Manager Release 1.7 (sparc)
LuAMBB14_36.1.1


**********************************************
 * AnyMedia Element Manager                   *
 * (c) 1999-Lucent Technologies               *
**********************************************


Package <LuSysAdm> SystemAdmin LuSysAdm_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

AnyMedia EM R1.7 path=/opt/lucent/
AnyMediaEM_R1.7

Package <LuAM> Alarms LuAM_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7

Package <LuNER> NER LuNER_36_1.1 have been found
in /opt/lucent/AnyMediaEM_R1.7

Package <LuNeED> NetEvenDist LuNeED_36_1.1 have
been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuSec> Security LuSec_36_1.1 have been
found in /opt/lucent/AnyMediaEM_R1.7

Package <LuShelf> ConbinedShelf LuShelf_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuSysED> SystemEventDist LuSysED_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuTrap> SystemEventDist LuTrap_36_1.1
have been found in /opt/lucent/AnyMediaEM_R1.7

Package <LuLUMRT> Lumos Build 3.0 run-time have
been found in /opt/lucent/LUMOS

OK, No previous package LuAMBB14 have been
found.

Using </> as the package base directory.

## Processing package information.
```

```
## Processing system information.

 2 package pathnames are already properly
 installed.

## Verifying disk space requirements.


WARNING:

The / filesystem has 185076 free blocks. The
current installation requires 203474 blocks, which
includes a required 150 block buffer for open
deleted files. 18398 more blocks are needed.


Do you want to continue with the installation of
<LuAMBB14> [y,n,?] y
```

5. Type **Y** and press **Return**

```
## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuAMBB14> [y,n,?]
```

6. Type **Y** and press **Return**

```
Installing AnyMedia BB Element Manager Release
1.7 as <LuAMBB14>


## Installing part 1 of 1.

<files list>

.............

[ verifying class <common> ]

## Executing postinstall script.

Package <LuOSRT> ObjectStore 5.1_SP2 Run-Time
have been found in /opt/lucent/OS51_SP2
```

```
Creating data bases


You have the installation logfile in
/tmp/EM_Install_LuAMBB14.log


Installation of <LuAMBB14> was successful.


## The package < LuAMBB14> is not installed in
the system.

## Please try ../install_AMEM again and install
the package < LuAMBB14>.

## to complete the installation.
```

NOTE:
The last message is an error and can be ignored.

2.2.1.2 Client side installation

Complete the following procedure to install the *AnyMedia* client side.

Step	Procedure
1.	Go to the directory where the installation script is placed (DC-ROM 1 of 4).
2.	Type **./install_AMEM_gen** and press **Return**.

```
AnyMedia EM R1,7 installation
CopyRight (c) 2000 Lucent Technologies, Inc.
All Rights Reserved

**Pre-requisites**

1.- Before attempting to install the
application, please,read the readme.txt file.

2.- AnyMedia EM R1,7 runs on SUN SPARC
Solaris 2 computers running Solaris 2.6 plus
security and Y2000 and packs 105490-07,
105568-13, 105210-19, 106040-12, 105633-21,
106409-01, 105181-15, 105669-07, 105284-25
patches recommended by SUN and 106255-01 patch.
```

```
3.- TCP ports:
The following ports MUST be available in order
to succesfully run the AnyMedia EM:
* 1570: Orbix daemon uses the TCP port 1570 in
order to wait for incoming connections that use
the Orbix protocol.
* 1591 to 1641: As Corba servers are activated
by the Orbix daemon, they are assigned a port so
that clients can communicate with it. It is
essential that these ports are not used by any
process on the SAME SUBNET DOMAIN.

4.- The install_AMEM script runs on K-shell
<ksh> environment.

5.- At least the system environment variable
PATH MUST include the paths "/sr/bin",
"/usr/sbin" and "/uas/ucb" (for instance,
"export PATH=$PATH:/usr/bin/:/usr/sbin:/usr/ucb").

6.- The time zone MUST be the same for the Any
Media Client <GUI>, LUMOS and Network Element.
This parameter is needed for installing the Any
Media Client.

******************

Do you like to continue [y,n,?,q]
```

3. Type **y** and press **Return** to continue or type **n** or **q** and press **Return** to exit.

```
AnyMedia NB EM R1,7 installation
CopyRight (c) 2000 Lucent Technologies, Inc.
All Rights Reserved.


Please, choose the installation mode
1 ADM  <Administration package installation>
2 GUI <Client package installation>
Enter selection [?,??,q]:
```

4. Type **2** and press **Return**

Java 1.2.2 -05 runtime installation

```
Packages to be installed: LuJRERT, LuOXWRT,
LuNETSCP, LuGUI30

Processing package instance <LuJRERT> from
</homelocal/tmp/lucent/AnyMediaEMR1.7


JRE 1.2.2-05 for AnyMedia EM R1.7

(sparc-solaris) 1.2.2-05

OK, No previous package LuJRERT have been found.

Applications to install:

1 --> jre version 1.2.2_05

2 --> symantec classes

3 --> report pro classes

4 --> all

5 --> exit

Selection:
```

5. Type **4** and press **Return**.

```
Here is a list of your partitions and the free
space in each of them:

Filesystem                    kbytes   used     avail    capacity  Mounted on

/dev/dsk/c0t0d0s0             143927   36997    92538    29%       /
/dev/dsk/c0t0d0s4             625262   401583   167406   71%       /usr
/dev/dsk/c0t0d0s3             96455    11928    74882    14%       /var
/dev/dsk/c0t0d0s6             6591133  3366955  3158267  52%       /homelocal
/dev/dsk/c0t0d0s5             240399   8597     207763   4%        /var/cache
swap                          1194560  8600     1185960  1%        /tmp
masstc1:/export1/bld/2/bldr17 51014048 44384096 6289872  88%       /home/bldr17
masstc1:/export1/bld/2/syi_pl 51014048 44384096 6289872  88%       /home/syi_pl

Enter install directory [/opt/lucent/
JDK_1.2.2_05][?,q]
```

6. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Select owner and group for package files.

NBR  USER:GROUP

  1 halt:other
```

```
  2 root:other
  3 smtp:root
  4 ver1:staff
Enter selection [?,??,q]:
```

7. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected
Using </> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.
This package contains scripts which will be ex
ecuted with super-user permission during the
process of installing this package.
Do you want to continue with the installation
of <LuJRERT> [y,n,?]
```

8. Type **y** and press **Return**.

```
Installing JRE 1.2.2-05 for AnyMedia EM R1.7 as
<LuJRERT>
## Installing part 1 of 1.
<files list>
.............
[ verifying class <jre> ]
/opt/lucent/JDK_1.2.2_05/symantec/symbeans.jar
[ verifying class <symantec> ]
## Executing postinstall script.

 You have the installation logfile in
/tmp/EM_Install_LuJRERT.log

Installation of <LuJRERT> was successful.
```

OrbixWeb 3.1 installation

```
Processing package instance <LuOXWRT> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


OrbixWeb 3.1 Runtime for AnyMedia EM R1.7
(sparc-solaris) Version 3.1 Run-Time


Installing Version 3.1 Run-Time.
OK, No previous package LuOXWRT have been found.


Here is a list of your partitions and the free
space in each of them:

Filesystem                     kbytes    used      avail    capacity  Mounted on

/dev/dsk/c0t0d0s0              143927    36997     92538    29%       /
/dev/dsk/c0t0d0s4              625262    401583    167406   71%       /usr
/dev/dsk/c0t0d0s3              96455     11974     74836    14%       /var
/dev/dsk/c0t0d0s6              6591133   3401428   3123794  53%       /homelocal
/dev/dsk/c0t0d0s5              240399    8597      207763   4%        /var/cache
swap                           1194528   8608      1185920  1%        /tmp
masstc1:/export1/bld/2/bldr17  51014048  44384096  6289872  88%       /home/bldr17
masstc1:/export1/bld/2/syi_pl  51014048  44384096  6289872  88%       /home/syi_pl


Enter install directory [/opt/lucent/
OrbixWeb3.1] [?,q]
```

9. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Package <LuJRERT> jre 1.2.2-05 have been found
in /opt/lucent/JDK_1.2.2_05

Checking your DNS domain name...

The DNS domain name found was: es.lucent.com

What is your DNS domain name
[default: es.lucent.com]  [?,q]
```

10. Type your DNS domain name and press **Return** or press **Return** to accept the default name.

```
Enter the NS hostname? [masc216] [?,q]
```

11. Type the AEM server hostname and press **Return** or accept the default hostname by pressing **Return** only.

```
Wait....

Do you agree with NS hostname <masc216>
IP address:<IP address>] [y,n,?,q]:
```

12. Type **y** and press **Return** if the IP adress is correct.

```
Select owner and group for package files.

NBR  USER:GROUP
  1 halt:other
  2 root:other
  3 smtp:root
  4 ver1:staff
Enter selection [?,??,q]:
```

13. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected

Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.

This package contains scripts which will be
executed with super-user permission during the
process of installing this package.

Do you want to continue with the installation
of <LuOXWRT> [y,n,?]
```

14. Type **y** and press **Return**.

```
Installing OrbixWeb 3.1 Runtime for AnyMedia
EM R1.7 as <LuOXWRT>

## Installing part 1 of 1.

<files list>

.............

[ verifying class <none> ]

## Executing postinstall script.
```

```
You have the installation logfile in
/tmp/EM_Install_LuOXWRT.log


Installation of <LuOXWRT> was successful.
```

Netscape 4.6 installation

```
Processing package instance <LuNETSCP> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


Netscape Navigator 4.6 (Stand Alone) for
AnyMedia EM R1.7 (sparc-solaris) Version 4.6

OK, No previous package LuNETSCP have been found.


Here is a list of your partitions and the free
space in each of them:

Filesystem                     kbytes    used     avail    capacity Mounted on
/dev/dsk/c0t0d0s0              143927    36997    92538    29%      /
/dev/dsk/c0t0d0s4              625262    401583   167406   71%      /usr
/dev/dsk/c0t0d0s3              96455     12119    74691    14%      /var
/dev/dsk/c0t0d0s6              6591133   3405788  3119434  53%      /homelocal
/dev/dsk/c0t0d0s5              240399    8597     207763   4%       /var/cache
swap                           1194208   8616     1185592  1%       /tmp
masstc1:/export1/bld/2/bldr17  51014048  44384096 6289872  88%      /home/bldr17
masstc1:/export1/bld/2/syi_pl  51014048  44384096 6289872  88%      /home/syi_pl


Enter install directory
[/opt/lucent/Netscape][?,q]
```

15. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Select owner and group for package files.

NBR  USER:GROUP

  1 halt:other

  2 root:other

  3 smtp:root

  4 ver1:staff

Enter selection [?,??,q]:
```

16. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected
Using </> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already
installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be
executed with super-user permission during the
process of installing this package."
Do you want to continue with the installation
of <LuNETSCP> [y,n,?]"
```

17. Type **y** and press **Return**.

```
Installing Netscape Navigator 4.6 (Stand
Alone) for AnyMedia EM R1.7 as <LuNETSCP>
## Installing part 1 of 1.
<files list>
.............
[ verifying class <none> ]
## Executing postinstall script.

You have the installation logfile in
/tmp/EM_Install_LuNETSCP.log

Installation of <LuNETSCP> was successful.
```

GUI installation

```
Processing package instance <LuGUI24> from
</homelocal/tmp/lucent/AnyMediaEMR1.7>


AnyMedia Element Manager Release 1.7 (Client)
(sparc) LuGUI24_36_1.1


*******************************************
 * AnyMedia Element Manager *
 * (c) 1999-Lucent Technologies *
*******************************************
OK, No previous package LuGUI30 have been found.


Where should AnyMediaEM GUI be installed?
[/opt/lucent/AnyMediaEM_R1.7/GUI24] [?,q]
```

18. Type a valid path where the package files must be placed and press **Return** or press **Return** to accept the default path.

```
Package <LuOXWRT> OrbixWeb Version 3.1 Run-Time
have been found in /opt/lucent/OrbixWeb3.1
Package <LuJRERT> jre 1.2.2-05 have been found
in /opt/lucent/JDK_1.2.2_05
Package <LuNETSCP> Netscape Version 4.6 have
been found in /opt/lucent/Netscape


Select owner and group for package files.
NBR  USER:GROUP
  1 halt:other
  2 root:other
  3 smtp:root
  4 ver1:staff
Enter selection [?,??,q]:
```

19. Type **4** and press **Return**.

```
User: ver1 and Group: staff, have been selected


What is the AnyMediaEM Server Host? [masc216] [?,q]
```

20. Type the host name where the *AnyMedia* AEM servers were installed and press **Return** or press **Return** to select the default name (masc216).

```
Wait....


Login for CutThrough functionallity? [?,q]
```

21. Type a valid login (e.g. ver1) and press **Return**.

```
Password for CutThrough functionallity?  [?,q]
```

22. Type a valid password (e.g. newuser1) and press **Return**.

```
The name of the location where the EM is working
is needed for printing facility.


What is the name of the location?  [?,q]
```

The location name will appear in the document header of the printing facility.

23. Type your AEM location name (e.g. Tres Cantos Lab) and press **Return**.

```
Code for the representation of names of
languages
Refer to ISO 639:1988 (E/F) for more information
1  da     Danish
2  de     German
3  fr     French
4  it     Italian
5  zh     Chinese
6  es     Spanish
7  en     English


Enter selection [?,??,q]: 7
```

24. Type your language code and press **Return**.

```
Code for the representation of names of
countries
```

```
Refer to ISO 3166 for more information
1  DK     DENMARK
2  DE     GERMANY
3  FR     FRANCE
4  IT     ITALY
5  CN     CHINA
6  ES     SPAIN
7  GB     UNITED KINGDOM
8  US     UNITED STATES

Enter selection [?,??,q]: 8
```

25. Type your country code and press **Return**.

```
Code for the representation of names of Time
Zones
1  GMT     (0)    Greenwich Mean Time
2  ECT     (1)    European Central Time
3  EET     (2)    Eastern European Time
4  ART     (2)    (Arabic) Egypt Standard Time
5  EAT     (3)    Eastern African Time
6  MET     (3.5)  Middle East Time
7  NET     (4)    Near East Time
8  PLT     (5)    Pakistan Lahore Time
9  IST     (5.5)  India Standard Time
10  BST     (6)    Bangladesh Standard Time

... 21 more menu choices to follow;
<RETURN> for more choices, <CTRL-D> to stop
display:^D
Enter selection [?,??,q]: 2
```

26. Type the desired time zone and press **Return**.

NOTE:
The time zone **must** be the same for the *AnyMedia* Client (GUI), LUMOS, Network Element and OS.

```
Using </> as the package base directory.

## Processing package information.

## Processing system information.

## Verifying disk space requirements.

## Checking for conflicts with packages already
installed.

## Checking for setuid/setgid programs.


This package contains scripts which will be
executed with super-user permission during the
process of installing this package.


Do you want to continue with the installation of
<LuGUI30> [y,n,?] y
```

27. Type **y** and press **Return**.

```
Installing AnyMedia Element Manager Release 1.7
(Client) as <LuGUI24>

## Installing part 1 of 1.

<files list>

.............

[ verifying class <channels_24> ]

## Executing postinstall script.

**********************************************

* Execute ". AnyMediaEM_GUI.sh" to set the
environment *

 **********************************************

You have the installation logfile in
/tmp/EM_Install_LuGUI24.log


Installation of <LuGUI24> was successful.


Installation of AnyMedia EM R1.7 was successful
<GUI side installation>
```

2.2.1.3 Post-install actions

2.2.1.3.1 AEM server

To be able to start-up the server it is necessary previously to execute the following script:

. <AnyMedia_path>/cfg/AnyMediaEM.sh

This would set all the necessary environment variables. It is recommended to include this line in the user .profile or to create an alias to facilitate the use.

2.2.2 Installing individual packages

The installation script **install_AMEM_*** can be used to install individual packages and will take care of the installation dependencies (that is, if a needed package is not installed previously it will not allow to continue until you install it). If the package is already installed on the target system, the following actions must be done:

- the package must be de-installed previously (refer to “Remove AnyMedia package installations” on page 73 for more information about packages de-installation)
- in order not to affect the rest of the installed packages, the package must be re-installed in the same directory as the previous one.

Installation dependencies are not the same than functional dependencies. In order to the AEM R1.7 to work at least all the obligatory packages should be installed (third parties and common packages for the server and full client installation for the client).

System responses and inputs for this type of installation and for a full installation are similar. Only the following differences could be found:

- When an installation starts, the package checks if a previous installation of the package already exists in the system. If no previous package is found, the following message will appear:

  “OK, No previous package <Package_Name> have been found.”

NOTE:
Refer to “Type 1 and press Return” on page 9 to see this response.

If one of the following messages appears, the installation will stop without changes on the system:

- The following message appears if there is a previous package in the system that was completely installed and has the same version

  “Previous completely installed package <Package_Name> version: <Package_Version> have been found. And it is the same to the new one you want to install:<Package_Version>.”

- The following message appears if there is a previous package in the system that was partially installed and has the same version

  “Previous partially installed package <Package_Name> version: <Package_Version> have been found. And it is the same to the new one you want to install:<Package_Version>. But it is partially installed. Better to use pkgrm <Package_Version>and installed it again.”

- The following message appears if there is a previous package in the system that was (partially or completed) installed and has different version

  “Current administration requires that a unique instance of the <Package_Name> package be cre ated. However, the maximun number of instances of the package which may be supported at one time on the same system has already been met. No changes were made to the system”

After this step, the installation looks for its packages dependencies. If a needed package is found the following message will appear:

“Package <Package_Name> <Application_Name> <Application_Version> have been found in <Application_Path>”

NOTE:
Refer to “Type y and press Return” on page 14 to see this response.

If the package is not found, the installation will prompt about its installation path in order to check this path and the correct application version:

"<Package_Name> needs <Application_Name> <Application_Version> to be installed previ ously. If it isn’t, Answer ’q’ to next question and install the package <Package_Name> otherwise provide the paths required.

What is the base path of <Required_Package_Name> <Package_verision> [?,q]?"

When an input is provided the installation checks the path and the version of the application. If the path is invalid the following message will appear:

“ERROR: Pathname does not exist.”

If the version is invalid one of the following messages could appear:

“Package <Required_Package_Name> have been found but INSTALL_PATH is not defined"

“Package <Required_Package_Name> have been found but with version: <Package_Version> not valid for <Package_Name>"

In both cases, the installation will prompt again for the required package.

- Also, the path where the Orbix.cfg file is located is requested in the OrbixNames, OrbixTalk and *AnyMedia* Servers packages installation, after the request for the installation path of the OrbixMT -the file will be modified by both installations- :

  "Where is Orbix.cfg file located [Orbix_path/cfg] [?, ??, q]?"

- Finally, after the ObjectStore installation the user must execute the **osconfig server** command, to configure the ObjectStore daemon.

2.2.3 Cancel installation

There are two ways to cancel the installation, as follows:

- internal cancellation: when the **install_AMEM_*** or **pkgadd** command detect through information files or installation scripts that something is invalid.
- external cancellation: if the administrator kill the process (kill -9 or Ctrl+C).

In both cases, the system informs about if files have been installed on the system. In this case, the administrator must use the **pkgrm** command to remove the installation.

2.2.4 Remove *AnyMedia* package installations

In order to remove any *AnyMedia* package installations, the administrator must execute the script **remove_ANY**. This script works exactly the same way than the installation one and allows to remove full or partial installations and individual packages also. It will ask confirmation for every package to be removed.

When a package is removed, all files installed by it or created during the *AnyMedia* operation, such as data bases and temporal data files, are erased in the target system.

2.2.5 PC-GUI client installation

This type of installation uses the **install_AMEM.bat** script. This script and all necessary files are included on Disk 4 of 4:

- readme.txt
- licence.txt
- install_AMEM.bat
- anymediaemr17.zip
- jre-1_2_2_005-win-i
- cc32d473.

Please read the readme.txt file first and then follow the given instructions.

NOTE:
In order to establish a communication it is necessary that the PC users and the server user are the same (with the same login).

Procedure

PC-GUI R1.7 is distributed on a compressed file named anymediaemr17.zip. This section contains instructions for installing the software once this file is in your system.

1. Change to the appropriate directory on the CD-ROM.

2. Install jre by double click on jre-1_2_2_005-win-i (recommended path for jre is C:\jdk1.2.2) and if netscape 4.7 is not already installed double click on cc32d473

3. Start installation script: double click on install_AMEM.bat

4. Select the extract button and indicate the directory where the system should be installed.

   This instruction generates five directories:

   - *classes*
   - *configuration*
   - *HelpFiles*
   - *Libraries*
   - *icons*.

OrbixWeb properties

Under *configuration* directory OrbixWeb.properties file should be updated with the name of the host, its IP address and the address. With the following format:

OrbixWeb.IT_NS_HOSTNAME=NameOfYourServerMachine
OrbixWeb.IT_NS_IP_ADDR=IP.address.of.your.ServerMachine
*
*
*OrbixWeb.IT_LOCAL_HOSTNAME=IP.address.of.this.PC

If name of the PC where installation is taking part is not known by the server then update OrbixWeb.IT_IORS_USE_DNS=false.

AEM.users file

On the AEM.users file include the logging and password of the users that will used the PC client. The AEM.users contains the mappings of logging to host names. Each entry should be kept on an individual line. The name of the user should be placed in the first column followed by the corresponding encrypted password obtained by ypcat command on server side.
The user name and password should end with a colon. For example:

syi_snni:aZv4lkMOlVyD6:

After installation indicate the where PC-GUI had been installed in the file Enviroment_Varialbes.bat in CURRENT_DIR entrance.

If java is installed in different directory that the recommended one indicate the path on the bat file Enviroment_Variables.bat in the variable JDK_PATH.

2.2.5.1 Customizing SystemPreferences.ini

Please modify the SystemPreferences.ini as follows:

- update the variable IS_NAR_MARKET to "true" value.

The SystemPreferences.ini variables are described in Appendix B.

System management

3

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System management

3

3.1 Overview

This chapter provides you with information about:

- accessing the *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7
- general handling of the workspace and AEM windows
- starting up and shutting down applications
- printing out reports from AEM windows
- backup and restore tasks
- basics on log management and how to use the Log Viewer
- disaster recovery.

3.2 System access

To access the *AnyMedia* Element Manager (AEM) application, you need to have an account in the underlying operating system, and this account has to be accepted as a user account of AEM. The user account has to be NIS (network information name service) based and the NIS can be provided by the *AnyMedia* Server or by another machine. user accounts are managed by the administrator (cf. Chapter 4).

3.2.1 Login to operation system

This chapter describes how to log into the system.

System login

Complete the following procedure to log in:

Step	Procedure
1.	The system asks for your user name. Enter your user name and press **`Return`** or click ***OK***.
2.	The system asks for your password. Enter your password and press **`Return`** or click ***OK***.

Login correct

If the login was correct, the workspace is displayed.

Login incorrect

If the login was incorrect, a warning message appears ("`Login incorrect; please try again`."). Confirm the message by pressing **`Return`** or clicking ***OK*** and repeat the login procedure.

Start AEM

If the AEM was not yet started an administrator has to do this (cf. Chapter 3.4.2, page 3-18) before the AEM access bar can be started.

Start AEM access bar

To start the AEM access bar (cf. Figure 3-1, page 3-3) after a correct login, type in a terminal window, which you can open via the workspace manager (cf. Chapter 3.3.8, page 3-11):

```
cd <GUI base path>/GUI/
GUI_Main &
```

A splash screen is displayed and then the AEM access bar is shown.

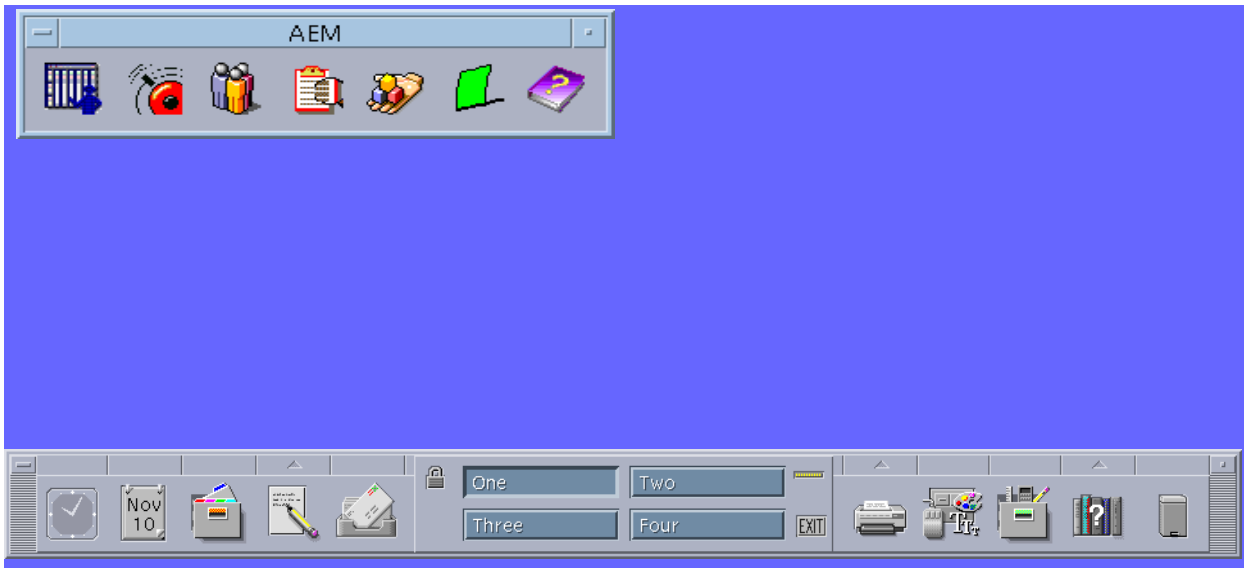

Figure 3-1 Workspace with AEM access bar

3.2.2 Logout from operation system

This chapter describes how to log out from the system. You can log out manually or be logged out automatically after a certain time of mouse and keyboard inactivity.

System logout

Complete the following procedure to log out manually:

Step	Procedure
1.	Close the AEM access bar window.
2.	Click on the **Exit** symbol in the workspace manager or select ***Log out...*** in the workspace menu.
3.	A message box pops up. Press **`Return`** or click ***OK*** to confirm the logout. Press ***Cancel*** not to log out.

After a logout the login screen is displayed again.

NOTE:
During the client installation (cf. Chapter 2.2.1.2, page 2-59) a cron process is installed. This cron automatically kills the GUI processes every night due security reason. The execution time of the cron can be changed by the administrator only.

3.2.3 AEM Access Bar

The AEM access bar allows access to all AEM applications and offers an alarm indication as well as a help feature.

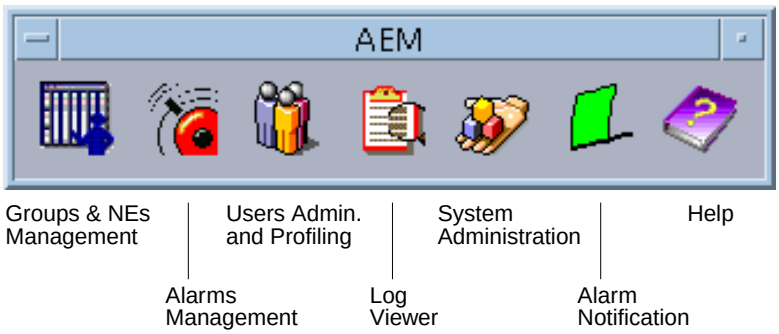

Figure 3-2 AEM access bar

Start access bar

To start the access bar see "Start AEM Access Bar" in Chapter 3.2.1, page 3-2.

Functions

The access bar provides access to the following applications:

- Groups & NEs managemen (cf. Chapter 5)
- Alarms Management (cf. Chapter 7)
- Users administration and Profiling (cf. Chapter 4)
- Log Management (cf. Chapter 3.7, page 3-46)
- System Administration (cf. Chapter 3.4, page 3-16)
- Alarm Notification
- Help.

Start applications

To start an application click on the respective icon.

Access Control

If an icon of the access bar is grayed, you are not allowed to access this application or the application is not running. Whether access is granted or denied depends on your user group membership. The Alarm Notification and Help icons are always accessible.

Alarm notification

The Alarm Notification icon displays a flag. If new alarms are received the flag is raised and an audible signal is issued. The alarm notification can be acknowledged (the flag goes down) by clicking on the icon.

Help icon

The Help icon provides access to the AEM online help. If you click on the Help icon the help index is displayed.

3.2.4 Capacity

For the recommended server and client platforms the AEM allows for a maximum of

- 30 simultaneous users
- 600 NEs to be managed.

3.3 General information on keyboard and windows

3.3.1 Keyboard

The keyboard offers special keys which are pressed individually or in combination with others to perform specific actions.

Special keys

The most important special keys are:

- **`Return`**, to confirm an entry or to start a new line when a text consisting of several lines is entered
- **`Esc`** = "Escape" to initiate an escape sequence, i.e. the keys pressed after pressing Esc are interpreted as an instruction and not as entered text
- **`Ctrl`** = "Control" to initiate a control sequence. **`Ctrl`** is always used in combination with one or several other keys and represents an instruction
- **`Alt`** = "Alternate" is pressed in combination with one or more other keys thereby assigning these keys another meaning
- **`Backspace`** or **`Del`** (= "Delete") to delete all characters to the left of the cursor.

Conventions

The keys on the keyboard are represented in the text in the following way: **`Ctrl`**, **`Backspace`**, **`A`**, **`B`**,...

Two or more of these keys connected by a hyphen ("-") indicate that they must be pressed simultaneously. **`Shift-Ctrl-A`**, for example, means that the "A" key must be typed while holding down **`Shift`** and **`Ctrl`**.

Keys that are separated by blanks only must be pressed one after the other. **`Esc A B`**, for example, means that **`Esc`** must be pressed first followed by **`A`** and then **`B`**.

3.3.2 Mouse

Conventions

When using the mouse, you will frequently find the following terms:

- **Click** or **Select**: Position the cursor on an object and press the left mouse button.
- **Double click**: Click the left mouse button twice in rapid succession.

- **Drag**: Move the mouse keeping the left mouse button pressed.

3.3.3 Different aspects of the cursor

The aspect of the cursor will vary to indicate the actions you may currently undertake using the mouse.

The following symbols show examples for possible cursor aspects:

The arrow up pointing to the left is used to select objects and to press buttons.

The "I" beam is used within a text field to indicate the position where text is to be inserted.

The "clock" cursor indicates that in the window where the cursor is positioned a process requiring a lot of processing time is running and no mouse or keyboard inputs are possible.

3.3.4 Basics on windows

The window which contains the **input focus** evaluates all keyboard and mouse inputs. The window containing the input focus is easy to distinguish from other windows opened on the screen by the different colour of its window frame.

Use the mouse to direct the input focus to a defined window. Click on a position within the window or place the cursor on the window.

The window shown in Figure 3-3, page 3-7 labels the different window controls which allow the user to change the aspect of the window on the screen and the process represented by the window.

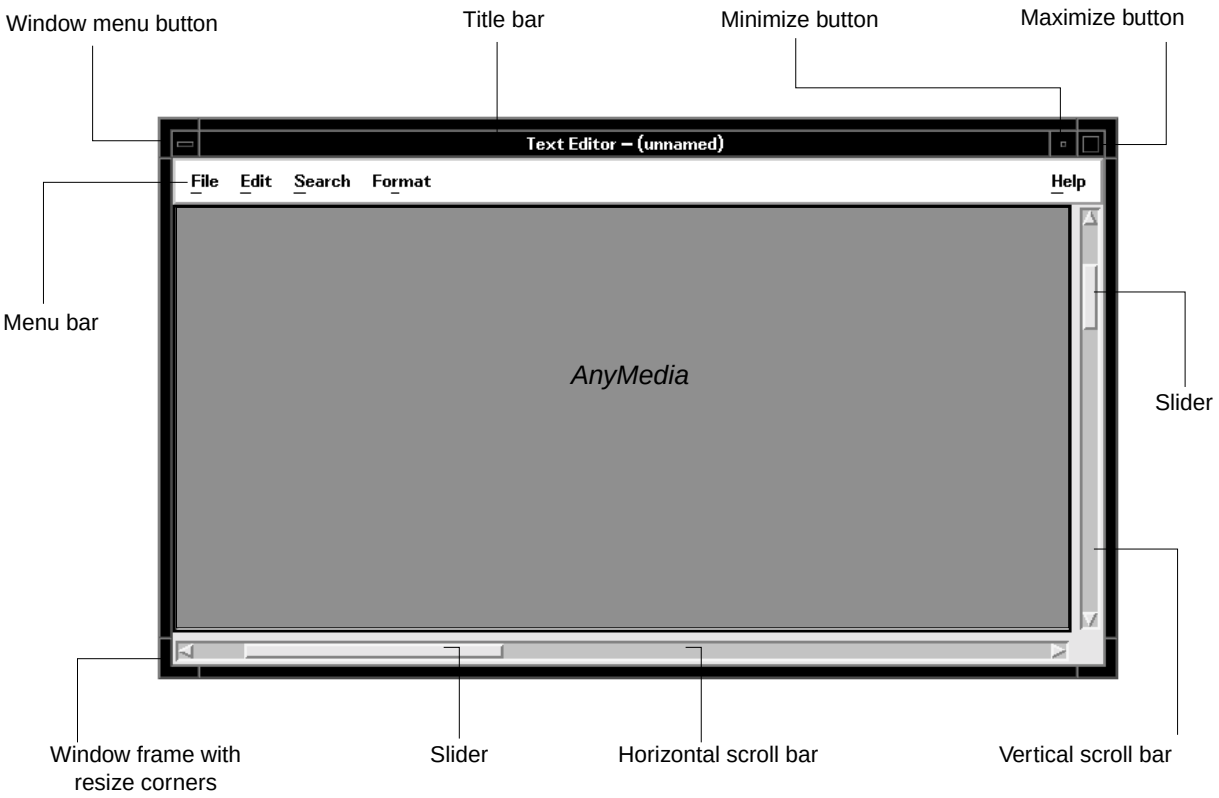

Figure 3-3 Specimen window and window controls

The individual window controls shown in Figure 3-3 are:

Figure 3-4 Controls in a window

Window part	Function
Window frame with resize corners	The frame delimits the window on the screen and its colour indicates whether this window contains the input focus. Drag the frame to shift and resize the window. By dragging the window corners, the window size may be modified to both limiting sides at the same time.
Title bar	The title bar informs you about the function of the window. Drag the title bar to shift the window on the screen.
Minimize button	If you click on the minimize button, the window will be displayed in its minimum size, i.e. it will appear as an icon on the screen, though the process represented by the window will continue running.

Figure 3-4 Controls in a window

Window part	Function
Horizontal scroll bar	Use the horizontal scroll bar and the slider to shift the visible window section to the left or right. ■ Small step to the left or right: Click on the left or right scroll bar arrow. ■ Page left or right: Click on the scroll bar to the left or right of the slider. ■ Shift window section: Use the mouse and drag the slider horizontally until the desired window section becomes visible.
Vertical scroll bar	Use the vertical scroll bar to shift the currently visible window section up or down: ■ Small step up or down: Click on the top or bottom scroll bar arrow. ■ Page up or down: Click on the scroll bar section above or below the slider. ■ Shift window section: Use the mouse and drag the slider up or down until the desired window section becomes visible.
Maximize button	Activate the maximize button by clicking on it to show the window at its maximum size, i.e. the window will occupy the whole screen. If you click again on the maximize button thus activated, the window will be restored to its original size.
Menu bar	The menu bar contains the menu names, each of them containing options related to the topic. These options may be selected to control the process running in this window (cf. Chapter 3.3.6, page 3-10)
Tool bar	The tool bar contains icons that provide quick access to most commonly used actions such as new, open, copy and print (cf. Chapter 5.3.2). Tooltips are also provided for these action icons.
Window menu button	Click this button to open the window menu (cf. Figure 3-5, page 3-9). Double click to exit the application.

3.3.5 Window menu

A window can be provided with a window menu. The window menu allows to alter the appearance of the window or to exit the application represented by the window.

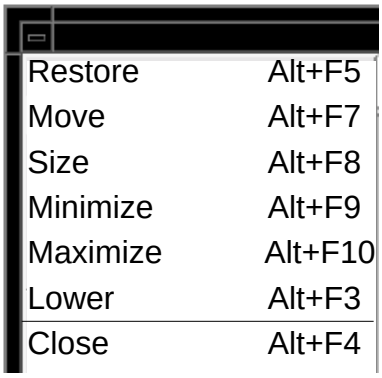

Figure 3-5 Window menu

To open the window menu shown in Figure 3-5, click on the window menu button or click with the right mouse button on the window frame.

The menu options in the window menu are listed in the following table.

Table 3-1 Window Menu Items and their Function

Menu Item	Function
Restore	A window currently being represented as an icon or in its maximum size is restored to its original size.
Move	Allows you to move the window interactively on the screen. The window frame will follow the mouse movements until you press the left mouse button.
Size	Allows interactive resizing of the window. Move the cursor appearing in the window to the window edge you wish to move. The edge will follow the mouse movements until you press the left mouse button.
Minimize	The window is shown as an icon.
Maximize	The window is shown in its maximum possible screen size.
Lower	If there are several overlapping windows, the currently active window is shifted to the bottom of the pile.
Close	This function will close the window and remove it from the user interface, exiting the application linked to the window.

3.3.6 Menu bar

Menu options

The menu bar of a window contains the menu names. Once you click on a menu it opens and a series of related menu options will be displayed under the menu name.

Conventions

Each option represents a function, which can be used to control the application running in the window. To call this function, click on the required option. A menu option is referred to in the text as: "***Menu name -> Menu option***" (e.g. in the menu below: ***Network View -> Maps***).

A grayed menu name or option cannot be selected.

Submenu conventions

Submenus are menus opening under a certain menu option and containing a number of related menu options. Some menu options are provided with a small arrow pointing to the right (>). These menu options have a submenu that will open as soon as you click on the menu option. A submenu option is referred to in the text as "***Menu name -> Menu option -> Submenu option***" (e.g. "***NE -> Program Copy -> Data***"). A submenu option again may offer a submenu, then an appropriate number of "**->**" is added.

3.3.7 Cursor menu

Menu at the cursor position

Some objects in windows have a menu associated with them. This menu will pop up at the cursor position when the right mouse button is pressed. The cursor must not, however, be positioned on a menu bar or a window frame. The cursor menu is not available in all windows. The functions which can be executed using this cursor menu depend on the application of the respective window.

Select menu option

Proceed as follows to select a menu option from the cursor menu:

Step	Procedure
1.	Press the right mouse button.
2.	Move the cursor onto the desired menu option.
3.	Click the left or right mouse button to execute the menu option, or if you do not wish to execute a menu option, move the cursor away from the menu and click somewhere outside the menu.

3.3.8 Workspace manager

General

After logging in to the operation system (SUN Solaris), the workspace manager window is situated at the bottom of the screen offering a range of functions and information. A function is initiated by clicking the respective area of the workspace manager. In Figure 3-6 only an example of the workspace manager is given, as the entries are configurable.

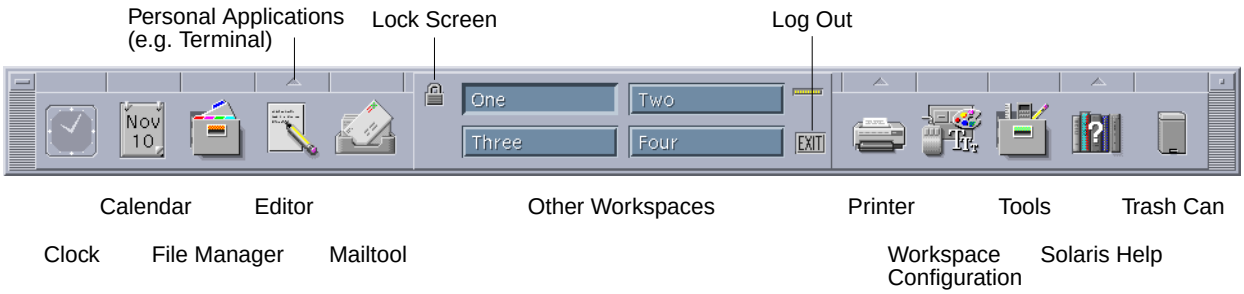

Figure 3-6 Workspace manager

Functions

For a detailed description of the offered functions, please refer to your *Solaris User's Guide* and *Solaris Common Desktop Environment User's Guide*.

3.3.9 Workspace menu

General

The workspace menu opens when you click with the right mouse button on the background of the workspace.

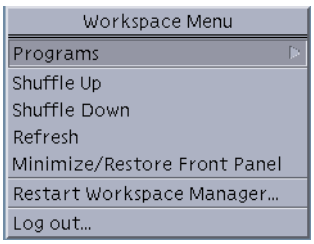

Figure 3-7 Workspace Menu

Workspace menu functions

The workspace menu provides the functions listed in the following table:

Table 3-2 Menu items of the workspace menu

Menu Item	Function
Programs	A submenu offering several programs.
Shuffle Up	If several windows on the screen are layered on top of one another, "Shuffle Up" brings the window from the very bottom to the top of the pile.
Shuffle Down	If several windows on the screen are layered on top of one another, "Shuffle Down" moves the window from the top of the pile to the very bottom.
Refresh	The contents of the windows on the screen and the screen backdrop are refreshed.
Minimize/Restore Front Panel	The workspace manager window is reduced to an icon or, if already iconized, restored to a window.
Restart Workspace Manager...	The workspace manager is restarted. Some of the changes to the user interface become valid only after the restart of the workspace manager. The restart must be acknowledged in a window.
Log out...	A logout from the system can be initiated.

3.3.10 Controls in AEM windows

Introduction

The windows of the AEM display certain controls (buttons, text fields, etc.). These controls are the same in all AEM windows and explained in this chapter.

Grayed controls

All controls within a window can be activated by clicking on them only if they are not grayed.

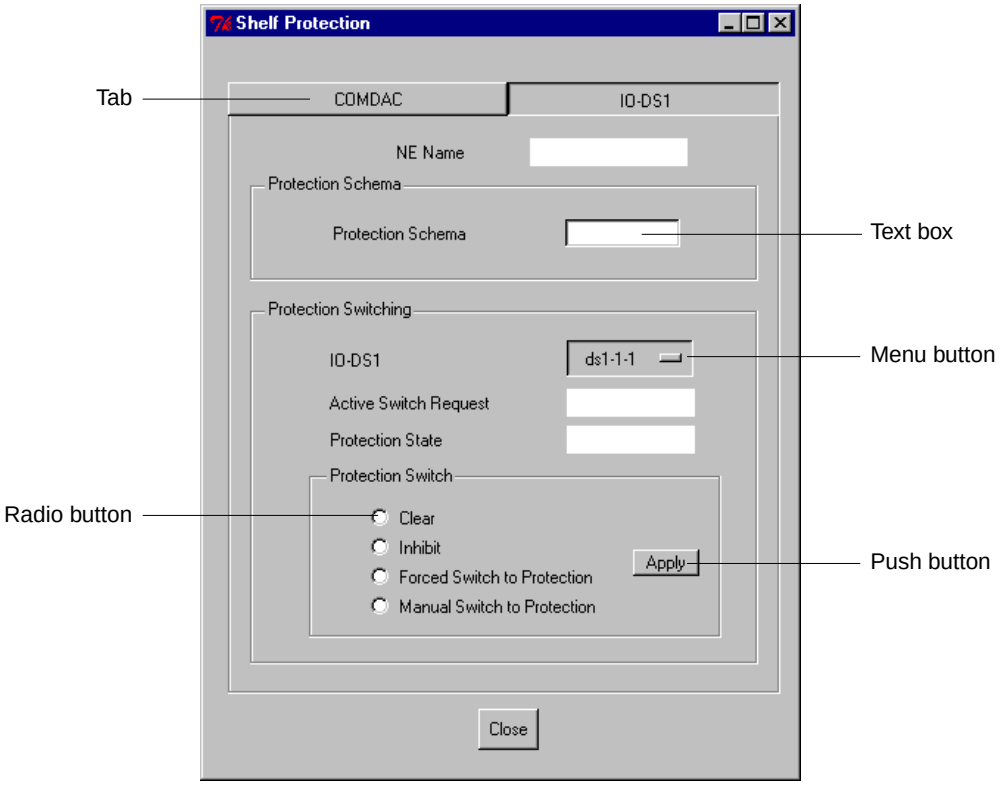

Figure 3-8 Example of an AEM window

Convention The following font is used when a button is mentioned, e.g. ***Close***.

The following elements are used within windows:

- Push button

  Each pushbutton is provided with a designation describing its function. If you click on the pushbutton, the function will be executed. If you click on a pushbutton, the designation of which is followed by three dots (e.g.: ***Help...***), a window will open where you may set further parameters. Push-buttons which alter their designation depending on context are also called **Label buttons**.

- Check box

  Check boxes have the same function as an on/off switch. Each time you click on a check box, you will change its toggle status. A (pressed) check box containing a check mark means that the option at this position is selected.

- Radio button

  Radio buttons have the same function as check boxes, with the difference that of various radio buttons of the same group, only one can be pressed at a time. As with a radio set, a set button will pop out when you press the next one in.

- Text box

  Text boxes are used to input text via the keyboard.

- List box

  A list box contains read-only data in list form. To scroll through a list you have to use the scroll bar at the right of the list box. If the list box allows the selection of entries, more than one entry can be selected by clicking on all desired entries once while the **`Ctrl`** key is pressed. If more entries are selected you can deselect a certain one by clicking on it again, while the **`Ctrl`** key is pressed. A range of consecutive entries can be selected simultaneously by clicking on the first entry of the range and then on the last while the **`Shift`** key is pressed.

- Drop-Down List box

  A drop-down list box allows you to enter data by selecting an entry from a list that drops down after clicking on the triangle on the right of the box.

- Spin box

  A spin box only allows a limited set of discrete ordered input values. You have to use the up and down arrows to increment or decrement the value.

- Tab

  A window can contain a register of several tabs. Clicking on a tab displays the corresponding contents in the window.

- Option menu

  The option menu is used to set a certain option. Its designation will indicate the option currently set. Handling of the option menu is the same as for a menu.

Frequently used buttons

The table below provides an overview of buttons which have the same function in every AEM window:

Table 3-3 Function of frequently used buttons

Button	Function
OK	Applies changes; window is closed
Apply	Applies changes; window stays open for further edits
Cancel	Discards changes; running operation is cancelled; window is closed
Close	Discards changes; window is closed

Frequently Used Menus

The table below provides an overview of menus which have the same function in every AEM window:

Table 3-4 Function of Frequently Used Menus

Menu	Function
File -> Print -> Print Table	Prints the contents of text lists in the window (cf. Chapter 3.5, page 3-34). Opens the Print Dialog window to set parameters for the print out.
File -> Print -> Print Window	Prints a screenshot of the whole window (cf. Chapter 3.5, page 3-34). Opens the Print Dialog window to set parameters for the print out.
File -> Print -> Preview	Shows how it will be printed if the "Print Table" option is used. Opens directly the Print Preview window.
File -> Exit	Closes all windows of this application.
Help -> On Window	Displays online help for this window.
Help -> Index	Displays online help index.

3.4 System administration

3.4.1 General

3.4.1.1 Introduction and definitions

Introduction

The AEM functionality is given by a set of processes of different types whose execution is controlled by the System Administration subsystem. In order to make possible the managing of all the processes running under the AEM, these will be grouped according to functionality, start up and recovery dependencies, into different levels. The lower one is the process level and the upper one is the AEM level. These levels are visible to the AEM administrators, who have managing capacities as start up, or recovery on some of them.

Definitions

The following table gives definitions of terms used in this chapter.

Table 3-5 Definitions

Term	Meaning
Server application	Set of server processes that perform a certain functionality. Server applications provide services for client applications.
Client application	Set of processes that use the services provided by the server applications (e.g. GUI and Northbound users)
Package	Logical parts of the AEM which provide specific functionality and can be started up, used and shutdown independently. There are three packages: ■ Narrowband package, for NB configuration and common functionality (alarms, logging and administration). ■ Broadband package, for BB configuration and common functionality (alarms, logging and administration). ■ Administration package, for common functionality (alarms, logging and administration).
Distributed Module Group (DMG)	Set of module groups of the same type distributed to provide load balancing and protection features.
Module Group (MG)	Set of modules with strong functional dependencies that influence the way they are installed and managed.
Module	Executable that provides a subset of services in the AEM and describes a way to handle its process instances.
Process	Entity of the AEM which has an (physical) operation system process associated.

3.4.1.2 Start up, shutdown and recovery

The AEM administrators can control the start up and shutdown at four levels: AEM level, package level, DMG level (only for optional DMGs) and process level.

AEM startup

The AEM can be started up in two ways:

- At boot time

  Root can configure the system to make the AEM start up at boot time, indicating the packages to be started up: NB, BB, Administration or any combination of them.

- Via command line

  The administrator can start AEM via command line, indicating the packages to be started up: NB, BB, Administration or any combination of them.

Package startup

Once the AEM is up, the administrator can start up from a GUI any non running package. For example, if only Administration package is started up on AEM start up, NB and BB packages can be started up later.

DMG startup

Those DMGs which are not mandatory for the AEM to be up can be as well started up and shutdown by the AEM administrators.

Process startup

The set of processes running under the AEM is also visible to the administrator, and he has the opportunity to start-up new processes up to a maximum number.

Process recovery

An AEM process is able to detect that its associated physical process is not working properly and in that case a recovery is automatically initiated on it. If the recovery fails, the AEM process enters OOS state. The user can request an on-demand recovery on any OOS process.

MG recovery

An MG is able to detect that a module under it is not working properly (its operational state is OOS) and in that case a recovery is automatically initiated on it. If the recovery fails, the MG enters OOS state. The user can request an on-demand recovery on any OOS MG.

AEM recovery

The AEM is able to detect that a package that is ON is not working properly (its operational state is OOS) and in that case a recovery is automatically initiated on it. If the recovery fails, the package remains OOS state. The user can request an on-demand AEM recovery. The AEM recovery command can be manually issued via the System Administration window (***AEM Recovery*** button). The manual AEM recovery request is ignored if none of the packages with administrative state "ON" has the operational state "out of service" (OOS).

Package, DMG and process shutdown

The AEM administrator can shutdown from the GUI packages, optional DMGs and processes.

AEM shutdown An AEM shutdown terminates all server applications and all graphical user interfaces running at the moment. This command can be issued via the System Administration window (***AEM Shutdown*** button) or the command line (CLEAN).

3.4.1.3 Scaling

Several NEs and users The number of users the AEM supports and the number of NEs being managed is flexible.

Several processes The scaling feature is provided by the existence of several DMGs, several module groups in each DMG and several processes per module which allow the load distribution. The concept of several DMGs is used to distribute the set of NEs into different disjoint subsets of NEs. This process is automatically done by the AEM. However, the AEM R1.7 is not yet distributed among several hosts.

3.4.1.4 Load balancing

General This functionality of the AEM is provided by different types of processes. Depending on the AEM workload, i.e. the activity due to user requests and NE-AEM communication level, less or more processing has to be done by each type of process.

Administrator tasks In general, the number of manageable users and NEs makes it inefficient to start up a process of each type per user or NE. The load balancing mechanisms allows the AEM to distribute the current load among the running processes. The administrator can start up a reasonable number of processes to assure a certain service level according with the expected workload.

3.4.2 Start-up/shutdown of server applications via command line

The system can be configured at installation time to start-up the server applications automatically on every reboot. An administrator can start-up or shut-down server applications via a command line interface.

Commands for start-up and shut-down The following table shows which commands have to be entered in a terminal window to start-up or shut-down server applications.

Table 3-6 Commands for start-up and shut-down

If you want to...	type in a terminal window...
start-up all AEM packages	**`SystemAdmin ALL`**
shut-down all AEM packages	**`SystemAdmin CLEAN`**
start-up the Administration AEM package	**`SystemAdmin Administration`**
start-up the NarrowBand AEM package	**`SystemAdmin NarrowBand`**
start-up the BroadBand AEM package	**`SystemAdmin BroadBand`**

SystemAdmin command Any combination of the parameters **`Administration`**, **`NarrowBand`** and **`BroadBand`** of the **`SystemAdmin`** is possible.

3.4.3 System administration window

Overview

The System Administration window provides functions for AEM recovery and shutdown. Via three tabs (Packages, DMGs and MGs) in this window the packages as well as optional distributed module groups (DMGs) can be started and shutdown. The MGs can be recovered and processed be added to modules or removed from them as well as killed and recovered.

3.4.3.1 Menus in the System Administration window

Menus and functions

The following table provides an overview of the menus of the System Administration window and its functions.

Table 3-7 Menus and functions

Menu Item	Function
File -> Print -> Print Table	Print out all items displayed in the window
File -> Print -> Print Window	Print a screenshot of the whole window.
File -> Exit	Close the System Administration window and exit the application.
View -> Reload	Update the displayed values with the current ones. (The values in the System Administration window are not automatically updated.)
Help -> On Window	Display help for System Administration
Help -> Index	Display help index.

Actions in the System Administration window

The System Administration window displays different information and allows for certain actions depending on the selected tab (Packages, DMGs, MGs). The following table shows actions which do not depend on the selected tab.

Table 3-8 Basic actions in the System Administration window

If you want to...	then...	Result
initiate an AEM Shutdown	press ***AEM Shutdown*** and confirm the shutdown in the warning window which pops up.	The AEM is shut down.
initiate an AEM Recovery	press ***AEM Recovery***	The AEM recovery starts.
close the System Administration windows	select ***File -> Exit*** or press ***Close***.	The System Administration window is closed.

3.4.3.2 Administration of packages

Overview

The Package tab in the System Administration window allows for start up and shutdown of packages. For each displayed package the contained DMGs can be viewed.

Package information

The table in the Package tab displays the following information.

Table 3-9 Package information

Table entry	Meaning
Name	The internally assigned name of the package.
Administrative State	The administrative state of the package. Possible values: **ON**, if the package is up; **OFF** otherwise. The **Administrative State** is changed whenever a startup or shutdown command is issued.
Operational State	The operational state of the package, displayed when the **Administrative State** is **ON** only. Possible values: **IS**, if the package is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise.

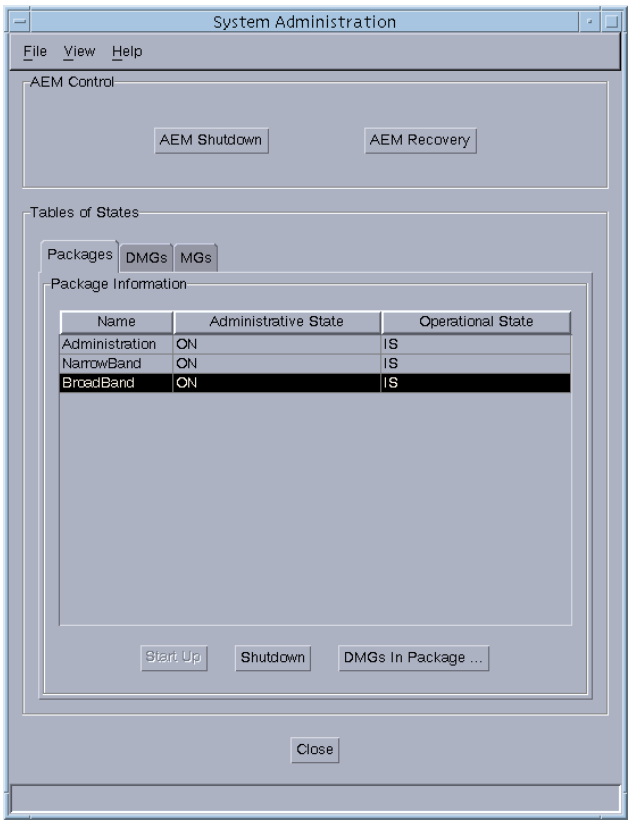

Figure 3-9 System Administration window (Packages)

Actions in Package tab

The following table lists all actions you can perform in the Package tab of the System Administration window.

Table 3-10 Actions for the administration of packages

If you want to...	then...	Result
start up a package	select the package in the table and press ***Start Up***. (The **Administrative State** of the package must be **OFF**.)	The selected package is started up.
shut down a package	select the package in the table, press ***Shutdown*** and confirm the shutdown in the warning window which pops up. (The **Administrative State** of the package must be **ON**.)	The selected package is shut down.
determine which DMGs are in the package	select the package and press ***DMGs in Package...***.	The DMGs in Package window is displayed (cf. Chapter 3.4.4).

3.4.3.3 Administration of distributed module groups

Overview

The distributed module groups (DMGs) tab in the System Administration window allows for start up and shutdown of optional DMGs. For each displayed DMG the contained MGs can be viewed and the DMG can be set up to be launched automatically when its package is started up.

DMGs information

The table in the DMGs tab displays the following information.

Table 3-11 DMGs information

Table entry	Meaning
Name	The internally assigned name of the DMG.
ID	The internally assigned ID of the DMG.
Type	The types of the MGs in this DMG.
Administrative State	The administrative state of the package. Possible values: **ON**, if the package is up; **OFF** otherwise. The **Administrative State** is changed whenever a startup or shutdown command is issued.
Operational State	The operational state of the package, displayed when the **Administrative State** is **ON** only. Possible values: **IS**, if the package is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise.

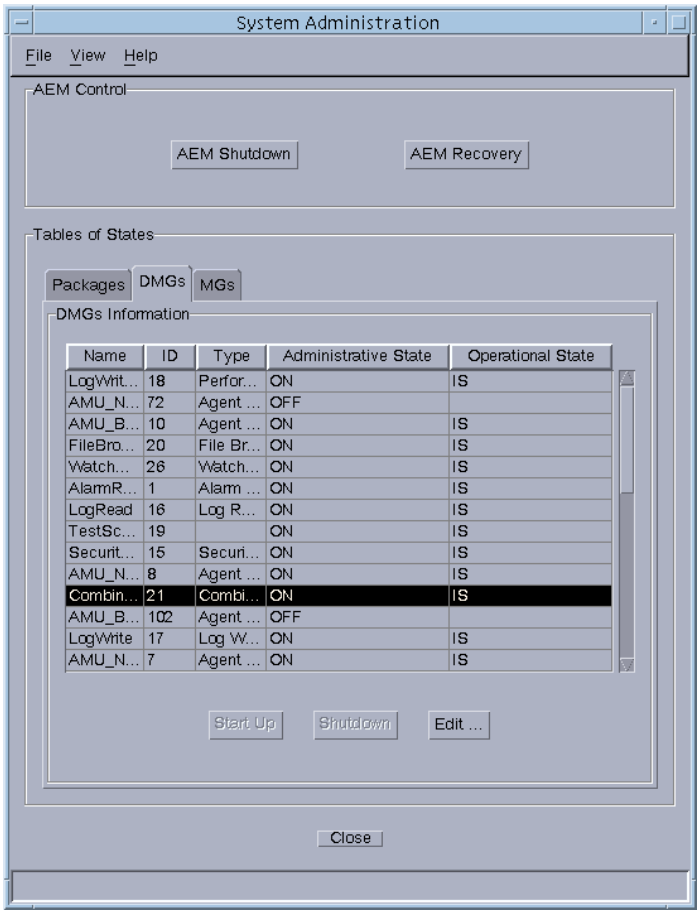

Figure 3-10 System Administration window (DMGs)

Actions in DMGs tab

The following table lists all actions you can perform in the DMGs tab of the System Administration window.

Table 3-12 Actions for the administration of DMGs

If you want to...	then...	Result
start up a DMG	select an optional DMG in the table and press ***Start Up***. (The **Administrative State** of the DMG must be **OFF**.)	The selected DMG is started up.
shut down a DMG	select an optional DMG in the table, press ***Shutdown*** and confirm the shut-down in the warning window which pops up. (The **Administrative State** of the package must be **ON**.)	The selected DMG is shut down.
edit a DMG	select the DMG and press ***Edit...***.	The Edit DMG window is displayed (cf. Chapter 3.4.5).

3.4.3.4 Administration of module groups

Overview The module groups (MGs) tab in the System Administration window allows for recovering an MG. Each displayed MG can be edited.

MG recovery A manual MG recovery should be made for an MG that is in the "out of service" (OOS) state. If a process of the MG is in the state "out of service" (OOS) and its automatic recovery fails the OOS state is propagated to the MG level. The workload of this MG could be distributed among the other MGs which then are overloaded but the OOS state would persist for the failed MG until a new recovery is instigated (manually or automatically).

MGs information The table in the MGs tab displays the following information.

Table 3-13 MGs information

Table entry	Meaning
Name	The internally assigned name of the MG.
ID	The internally assigned ID of the MG.
Type	The type of the MG.
Administrative State	The administrative state of the package. Possible values: **ON**, if the MG is up; **OFF** otherwise. The **Administrative State** is changed whenever a startup or shutdown command is issued.
Operational State	The operational state of the package, displayed when the **Administrative State** is **ON** only. Possible values: **IS**, if the package is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise.

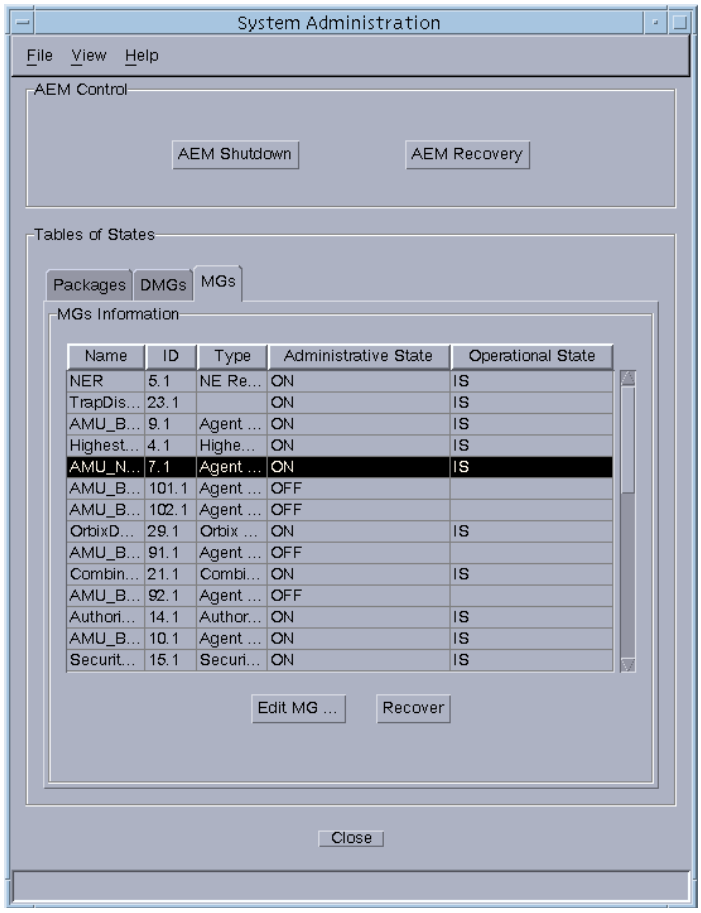

Figure 3-11 System Administration window (MGs)

Actions in MGs tab The following table lists all actions you can perform in the MGs tab of the System Administration window.

Table 3-14 Actions for the administration of MGs

If you want to...	then...	Result
recover an MG	select the MG in the table and press ***Recover***. (The **Administrative State** of the MG must be **ON**.)	The selected MG is recovered.
edit an MG	select the MG and press ***Edit...***.	The Edit MGs window is displayed (cf. Chapter 3.4.6).

3.4.4 View distributed module groups of a package

Overview

The DMGs in Package window allows for viewing the DMGs which make up packaged. Additional information for each DMG is displayed.

DMGs information

Next to **Package Name** the name of the selected package is displayed. The table under **DMGs in Package** displays the following information.

Table 3-15 DMGs Information

Table entry	Meaning
Name	The internally assigned name of the DMG.
ID	The internally assigned ID of the DMG.
Type	The types of the MGs in this DMG.
Administrative State	The administrative state of the DMG. Possible values: **ON**, if the DMG is up; **OFF** otherwise. The **Administrative State** is changed whenever a startup or shutdown command is issued.
Operational State	The operational state of the MG, displayed when the **Administrative State** is **ON** only. Possible values: **IS**, if the package is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise.

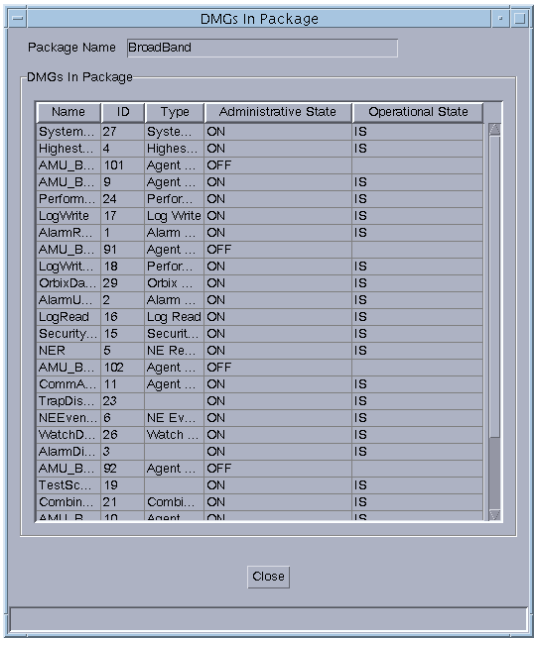
DMGs In Package
Package Name BroadBand
DMGs In Package
Name ID Type Administrative State Operational State
System... 27 Syste... ON IS
Highest... 4 Highes... ON IS
AMU_B... 101 Agent ... OFF
AMU_B... 9 Agent ... ON IS
Perform... 24 Perfor... ON IS
LogWrite 17 Log Write ON IS
AlarmR... 1 Alarm ... ON IS
AMU_B... 91 Agent ... OFF
LogWrit... 18 Perfor... ON IS
OrbixDa... 29 Orbix ... ON IS
AlarmU... 2 Alarm ... ON IS
LogRead 16 Log Read ON IS
Security... 15 Securit... ON IS
NER 5 NE Re... ON IS
AMU_B... 102 Agent ... OFF
CommA... 11 Agent ... ON IS
TrapDis... 23 ON IS
NEEven... 6 NE Ev... ON IS
WatchD... 26 Watch ... ON IS
AlarmDi... 3 ON IS
AMU_B... 92 Agent ... OFF
TestSc... 19 ON IS
Combin... 21 Combi... ON IS
Close

Figure 3-12 DMGs in Package Window

3.4.5 Editing distributed module groups

Overview

The Edit DMG window allows for setting up whether a DMG is automatically launched on system start up. It also displays information for each module contained in the DMG.

Launch DMG on package startup

The ***Launch on Package Start Up*** option allows for the configuration of the system to specific needs. If some of the optional DMGs are not needed for a given network configuration they can be set not to be automatically started to save system resources.

DMGs information

Next to **DMG Name** the name of the selected DMG is displayed. The type of the MG is indicated next to **MG Type**. The table under **MGs in DMG** in the Edit DMG window displays the following information.

Table 3-16 DMG information

Table entry	Meaning
Name	The internally assigned name of the MG.
ID	The internally assigned ID of the MG. The ID of an MG contains the ID of the DMG it belongs to.
Administrative State	The administrative state of the MG. Possible values: **ON**, if the MG is up; **OFF** otherwise. The **Administrative State** is changed whenever a startup or shutdown command is issued.
Operational State	The operational state of the MG, displayed when the **Administrative State** is **ON** only. Possible values: **IS**, if the MG is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise.

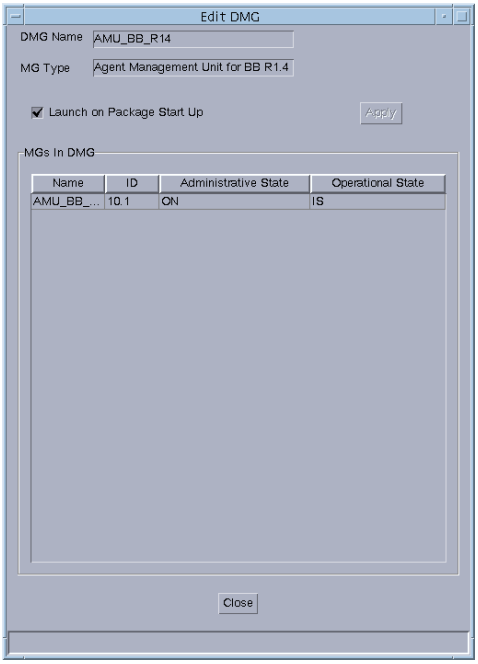

Figure 3-13 Edit DMG window

Actions The following table lists all actions which are possible in the Edit DMG window.

Table 3-17 Actions for editing a DMG

If you want to...	then...	Result
launch the DMG when the package starts up	select the check box ***Launch on Package Start Up*** and press ***Apply***.	Next time when any package containing the DMG is started the DMG is launched.
not launch the DMG when the package starts up	deselect the check box ***Launch on Package Start Up*** and press ***Apply***.	Next time the package is started the DMG is not launched.

3.4.6 Editing module groups

Overview The Edit MG window displays the modules contained in the module group. The processes which make up a module can be added or removed from the module. These processes can also be killed or recovered.

Add a process Each process in the module has a certain load level assigned. The load level is the number of clients that require service from this process. If the load level becomes higher it can be useful to add more processes to the module so that the load can be distributed among the processes.

Recover process

When a process has an operational state of "out of service" (OOS) it can be recovered.

Kill process

It is also possible to kill the physical process. The AEM process is not automatically removed.

Remove process

The AEM process (the object visible in the Edit MG window) can be removed from the module to shutdown the process from the AEM's viewpoint. In this case the physical process is automatically killed.

Module information

Next to **MG Name** the name of the selected MG is displayed. The table under **Modules in MG** displays the following information for all modules in the MG.

Table 3-18 Module information

Table entry	Meaning
ID	The internally assigned ID of the module.
Name	The internally assigned name of the module.
Type	The type of the module.
Operational State	The operational state of the module, displayed when the module is running only. Possible values: **IS**, if the module is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise. (The module is running only if the MG it belongs to has an Administrative State of ON.)

Next to **Module Name** the name of the selected module is displayed. How many processes are expected for this module is indicated next to **Expected Number of Processes**. This is the number of processed which are normally needed to manage the expected workload properly. The table under **Processes in Module** displays the following information for the selected module.

Table 3-19 Process information

Table entry	Meaning
ID	The internally assigned ID of the process.
PID	Process ID of this process.
Operational State	The operational state of the process. Possible values: **IS**, if the module is in service; **OOS**, if it is out of service; **TRANSITORY** otherwise. (The process is running only if the module it belongs to is running.)
Load Level	Number of clients which use this process (0 or more). The higher the number the higher the workload for the process.
Service Level	Depending on the service the process provides the value FULL or DEGRADED is displayed.

Table 3-19 Process information

Table entry	Meaning
Reason	Short description why the service is DEGRADED.

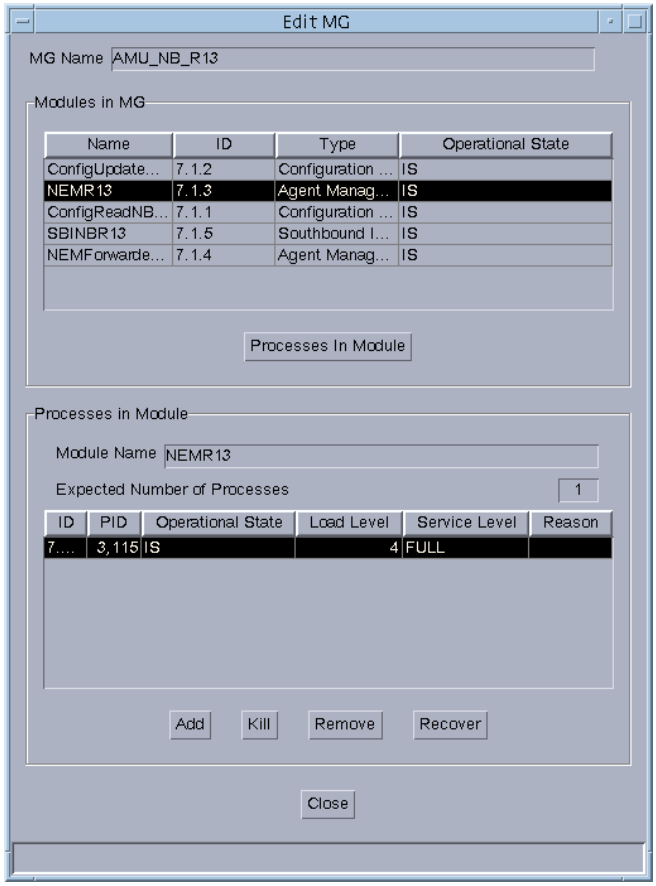

Figure 3-14 Edit MG window

Actions

The following table lists all actions which can be performed in the Edit MG window. Adding, killing, removing and recovering a process from a module is possible only after the "view or change the processes of a module" action was performed.

Table 3-20 Actions for editing an MG

If you want to...	then...	Result
view or change the processes of a module	select the module under **Modules in MG** and press ***Processes in Module***.	The process information for this module is displayed under **Processes in Module**. These processes can now be edited.
add a process to the module	press ***Add***. (The list of processes must not be empty.)	If the maximum number of processes which are allowed to run is reached the status bar displays a message that no more processes can be added otherwise a process is added to the module.
remove a process from the module	select the process which shall be removed and press ***Remove***. Confirm the removal in the warning window which opens.	If the minimum number of processes which have to run is reached the status bar displays a message that no more processes can be removed otherwise the process is removed from the AEM.
kill a process from the module	select the process which shall be killed and press ***Kill***. Confirm the killing in the warning window which opens.	The physical process is killed.
recover a process of the module	select the process which shall be recovered and press ***Recover***.	The process is recovered.

3.4.7 Contents of packages and (distributed) module groups

The following tables show which distributed module groups are contained in a certain package, also which module groups are in a certain distributed module group and finally which modules are contained in a certain module group.

Table 3-21 Module group types in a certain package

Package	Module group type
Administration, Narrowband, Broadband	AlarmRead
Administration, Narrowband, Broadband	AlarmUpdate
Administration, Narrowband, Broadband	AlarmDistributor
Administration, Narrowband, Broadband	HighestSeverityAlarmEventDistributor
Narrowband, Broadband	NER
Narrowband, Broadband	NEEventDistributor

Table 3-21 Module group types in a certain package

Package	Module group type
Narrowband	AMU_NB_R121
Narrowband	AMU_NB_R122
Narrowband	AMU_NB_R170
Broadband	AMU_BB_R112
Broadband	AMU_BB_R14
Narrowband, Broadband	CommAgentEventDistributor
Narrowband, Broadband	ConfigEventDistributor
Administration, Narrowband, Broadband	AccessPolicyManager
Administration, Narrowband, Broadband	AuthorizationService
Administration, Narrowband, Broadband	SecurityEventDistributor
Administration, Narrowband, Broadband	LogRead
Administration, Narrowband, Broadband	LogWrite
Broadband	LogWritePerf
Administration, Narrowband, Broadband	FileBrowser
Narrowband, Broadband	CombinedShelf
Broadband	TrapDispatcher
Broadband	PerformanceConfig
Administration, Narrowband, Broadband	SystemAdmin
Administration, Narrowband, Broadband	WatchDaemon
Administration, Narrowband, Broadband	SystemEventDistributor
Administration, Narrowband, Broadband	NamingService
Administration, Narrowband, Broadband	OrbixDaemon
Narrowband, Broadband	TestScheduler

Table 3-22 Module types in a certain module group type

Module group type	Module type
AlarmRead	AlarmRead
AlarmUpdate	AlarmUpdate, RemoveAlm
AlarmDistributor	AlarmDistributor, AlarmEventDistributor
HighestSeverityAlarmEventDistributor	HighestSeverityAlarmEventDistributor
NER	NER
NEEventDistributor	NEEventDistributor

Table 3-22 Module types in a certain module group type

Module group type	Module type
AMU_NB_R121	ConfigReadNBR121, ConfigUpdateNBR121, NEMR121, NEMForwarderR121, SBINBR121
AMU_NB_R122	ConfigReadNBR122, ConfigUpdateNBR122, NEMR122, NEMForwarderR122, SBINBR122
AMU_NB_R170	ConfigReadNBR170, ConfigUpdateNBR170, NEMR170, NEMForwarderR170, SBINBR170
AMU_BB_R112	ConfigReadBBR112, ConfigUpdateBBR112, BAMR112, BAMForwarderR112, SBIBBR112, PerformanceCollectBBR112
AMU_BB_R14	ConfigReadBBR14, ConfigUpdateBBR14, BAMR14, BAMForwarderR14, SBIBBR14, PerformanceCollectBBR14
CommAgentEventDistributor	CommAgentEventDistributor
ConfigtEventDistributor	ConfigtEventDistributor
AccessPolicyManager	AccessPolicyManager
AuthorizationService	AuthorizationService
SecurityEventDistributor	SecurityEventDistributor
LogRead	LogRead
LogWrite	LogWrite
LogWritePerf	LogWritePerf
TestScheduler	TestScheduler
FileBrowser	FileBrowser
CombinedShelf	CombinedShelf
TrapDispatcher	TrapDispatcher
PerformanceConfig	PerformanceConfig
SystemAdmin	SystemAdmin
WatchDaemon	WatchDaemon
SystemEventDistributor	SystemEventDistributor
NamingService	NamingService
OrbixDaemon	OrbixDaemon

3.5 Print out reports

General

The Print windows (cf. Figure 3-15, Figure 3-16 and Figure 3-17) are used from any application within AEM to generate an output of data.

System details for printing

If the Unix command "**`lp`**" does not exist or is not configured on your system the AEM software will not be able to print. This is because the print-out is first converted to PostScript format and then piped to the Unix command "**`lp -d printer_name`**" where **`printer_name`** is replaced by the value entered in the **Printer** field of the "Print Dialog".

Print options depend on operation system

The available options in the print dialogue depend on the used operating system and may slightly differ from the descriptions below, e.g. under Solaris it is not possible to change the orientation of the printed page.

3.5.1 Page Setup dialog

Page Setup

The Page Setup dialog pops up after the selection of ***Print Window*** in a window or ***Print*** in the Preview Frame dialog.

Figure 3-16 shows an example of the Page Setup dialog.

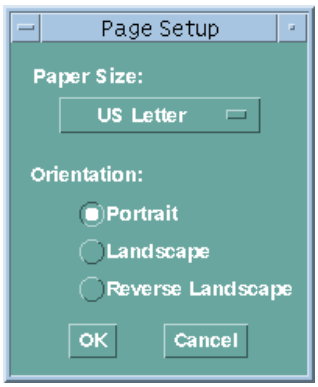

Figure 3-15 Page Setup dialog

Actions in Page Setup dialog

The following table provides an overview of the possible actions in the Page Setup dialog.

Table 3-23 Page Setup dialog actions

If you want to...	then...
select the paper size	use the option menu **Paper Size**.

Table 3-23 Page Setup dialog actions

If you want to...	then...
select the orientation of the print out	click one of the radio buttons below **Orientation**.
start printing and close the window	click on ***OK***.
close the print window without printing	click on ***Cancel***.

3.5.2 Print dialog

Print dialog

The Print (cf. Figure 3-16) and the Page Setup (cf. Figure 3-15) dialog pop up after the selection of ***Print Table*** in a window.

Figure 3-16 shows an example of the Print dialog.

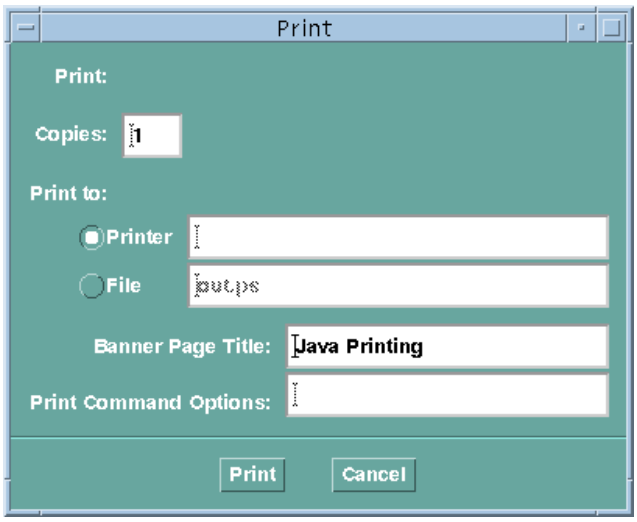

Figure 3-16 Print dialog

Actions in print dialog

The following table provides an overview of the possible actions which can be performed in the Print dialog.

Table 3-24 Print dialog actions

If you want to...	then...
print multiple copies	enter the number of copies in **Copies**.
print to a printer	enter the name of the printer in **Printer**.
print to a file	enter the name of the file in **File**.
have a title over the printed pages	enter the title in **Banner Page Title**.

Table 3-24 Print dialog actions

If you want to...	then...
apply UNIX print options	enter the options in **Print Command Options**.
start printing and close the window	click on ***Print***.
close the print window without printing	click on ***Cancel***.

3.5.3 Preview Frame dialog

Preview Frame

The Preview Frame dialog pops up after the selection of ***Preview*** in a window.

The following figure shows an example of the Preview Frame dialog.

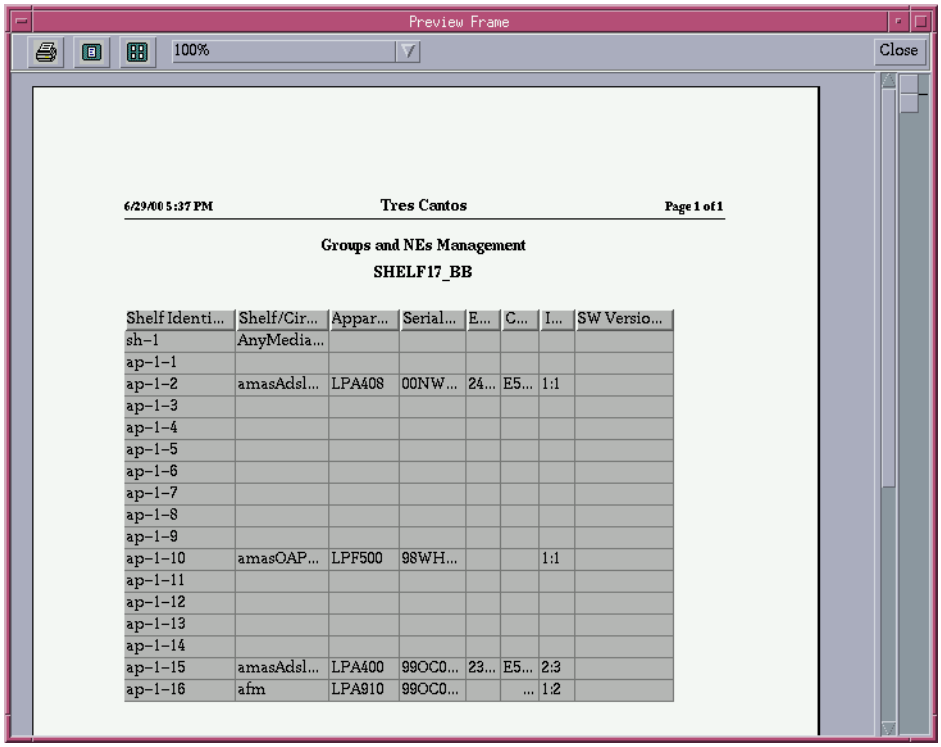

Figure 3-17 Preview Frame dialog

Actions in Preview Frame dialog

The following table provides an overview of the possible actions in the Preview Frame dialog.

Table 3-25 Preview Frame dialog actions

If you want to...	then...
print out	click on the ***printer icon***
cancel the print out	click on ***Close***
view a single page preview	click on the ***single page icon***
view a multi page preview	click on the ***multi page icon***
change the magnification of the preview	select another magnification with the ***% option menu***
maximize/restore the preview window	click on the ***monitor icon***

3.6 Backup and restore

The backup functions of the AEM allow you to copy AEM related file systems to removable media (such as tape) to safeguard against loss, damage, or corruption. The AEM system files and database backup allows to back up and restore system files and databases belonging to the installed applications (e.g. configuration files). Archiving is possible for AEM log files

The restore functions allow you to restore file systems by copying reasonably current backup files from removable media to a working directory.

3.6.1 Basics on backups and AEM databases

Definitions

The following table gives definitions of terms used in this chapter.

Table 3-26 Definitions

Term	Meaning
Backup	process of copying file systems to removable media (such as tape) to safeguard against loss, damage, or corruption.
Archive	process of copying file systems to removable media (such as tape) and deleting the original files once they have been backed up.
Restore	process of copying backup files from removable media to a working directory, replacing the original files which could have been damaged.
Full Backup	copies a complete file system or directory
Incremental Backup	copies new files and files that have changed since a previous backup. The incremental backups are usually given a dump level which determines which files are backed up. A certain level incremental backup will save all the new or changed files since the last backup with a lower level.
On-line Backup	backups performed on user demand
Off-line Backup	backups performed automatically via any scheduling mechanisms, e.g. cron file

Backup types

There are three different backup types. The following list shows their differences and advantages:

- Full backup

  A full backup copies a complete file system or directory, e.g. all AEM data. This method requires large numbers of backup tapes that take a long time to write and takes also some time to retrieve individual files because the

backup drive has to move sequentially to the point on the tape where the file is located. On the other hand, using full backup makes it easier to retrieve small changes in file systems.

- Incremental backup

  An incremental backup only includes copies of new files and files that have changed since a previous backup. It is available for database files only. Requires less resources, but searching for a certain file on the incremental tapes can take time.

3.6.2 Commands for backup, archive and restore

Default locations of data for backups or Archives

If a backup is done, the four AEM databases, the NVDS and the log files are copied to the backup medium. If an archive is made the log files are moved to the backup medium. The files from which a backup or archive is done are shown in the table below. The location of the files is relative to the main installation directory. (For changing default locations refer to Appendix B.)

Table 3-27 Default File Names for Backup and Archive

Database/File	File name (Directory/File)	Backup fails if file doesn't exist
Network registry database	NER/db	yes
System Administration database	SystemAdministrator/db	yes
NE management database	NEM/db	yes
Security database	Security/db	yes
Alarm database	AM/db	yes

Manual backup

The non-volatile data storage (NVDS) located at CM/nefiles/NVDS and the configuration files (*.cfg) are not backed-up by the AEM_backup command. A backup of these files can be done manually e. g. with the tar command.

System message

After each backup, archive or restore command a result message is displayed, which indicates whether the operation was successful or not. This message is displayed only if the command was entered on the command line.

Command syntax

In the following description of the commands, square brackets, e.g. **`[-c]`**, indicate optional parameters. The pipe symbol "|" indicates alternative options from which one has to be chosen, e.g. **`INC|FULL`**. All parameters not enclosed in brackets are mandatory. Each command is entered without enclosing parameters in brackets.

Backup files

Use the following command to make a backup of a database or directory. If you enter none of the optional parameters, a backup of all data necessary to restore the AEM will be done:

```
AEM_backup [-c] [-h] [-H] [-p backup_file_path] [-f backup_file_name]
[-t backup_type] [-l dump_level]
```

Parameter description:

-c Aborts a running backup operation.

-h, -H Display command syntax (**-h**) or additional help (**-H**).

-p *backup_file_path* The ***backup_file_path*** is the directory or device to back up. (Default: value of the variable **OAM.backup.backupDirectory**, which is set in the file **AnyMediaEM.cfg**.)

-f *backup_file_name* Location of the backup file. ***backup_file_name*** can be a local file or a locally mounted file (in case a local tape device is used ***backup_file_name*** specifies a "soft label"). (Default file names: EM_SYSBCK_yyyymmdd.fullbck for full backup EM_SYSBCK_yyyymmdd.incbck for incremental backup, with yyyy = year, mm = month, dd = day of the backup.)

-t *backup_type* Type of backup: incremental (**INC**) or full (**FULL**). (Default: FULL). This parameter is ignored if "**-l 0**" is used.

-l *dump_level* Specifies the backup level. Files modified since last backup at a lower level are copied, ***dump_level*** = 0...9. This parameter is ignored if "**-t FULL**" is used.

Restore files

Use the following command to restore a database or directory:

```
AEM_restore [-c] [-h] [-H] [-p backup_file_path]
-f backup_file_name
```

Parameter description:

-c Aborts a running restore operation.

-h, -H Display command syntax (**-h**) or additional help (**-H**).

-p *backup_file_path backup_file_path* is the directory or device to which the restored data should be written. (Default: value of the variable **OAM.backup.backupDirectory**, which is set in the file **AnyMediaEM.cfg**.)

-f *backup_file_name* Location of the backup file. ***backup_file_name*** can be a local file, a locally mounted file or a local tape device.

Archive files

Use the following command to archive log files. This function is primarily intended to archive the AEM log files. If you enter none of the optional parameters, the AEM log files will be archived.

```
AEM_archive [-c] [-h] [-H] [-p backup_file_path]
[-f backup_file_name]
```

Parameter description:

-c Aborts a running archive operation.

-h, -H Display command syntax (**-h**) or additional help (**-H**).

-p *backup_file_path* ***backup_file_path*** is the directory or device to archive. (Default: value of the variable **OAM.backup.archiveDirectory**, which is set in the file **AnyMediaEM.cfg**.)

-f *backup_file_name* Location of the backup file. ***backup_file_name*** can be a local file or a locally mounted file (in case of a local tape device is used ***backup_file_name*** specifies a "soft label"). (Default file name: EM_SYSARCH_yyyymmdd.arc, with yyyy = year, mm = month, dd = day of the archive.)

TAR command

The **`tar`** command is used in backup and restore scripts.

```
tar c|r [v] f tarfile file
tar x|t [v] f tarfile
```

Parameter description:

c Create a tar file. An already existing tar file is overwritten.

r Replace a tar file. An already existing tar file is not overwritten and the new information is appended at its end.

x Extract the data from the tar file.

t Display the table of contents of the tar file.

v The tar command verbosely displays what it does.

f *tarfile* ***tarfile*** is the name of the tar file.

file Name of the file, or a list of files separated by blanks which shall be added to the tar file. (Omitted for extract operations.).

3.6.3 Backup, archive and restore procedures

This section gives an overview of the steps necessary for a backup, archive or restore operation.

Prerequisite for backup, restore and archive

The backup, archive or restore commands require that some path system variables are properly set. This is done by the command **`AnyMediaNBEM.sh`** during the installation of AEM-NB. If this command was not executed the backup, archive or restore commands will not work.

Different users

When different users perform backup, archive or restore operations the system will display a message asking whether temporary data which remained from the previous user should be deleted. If such a message is displayed you must confirm the deletion of these data.

3.6.3.1 Backup procedure

The backup operation needs no user interaction after the backup command was executed.

3.6.3.2 Archive procedure

The archive operation needs no user interaction after the archive command was executed.

3.6.3.3 Restore procedure

3.6.3.3.1 General

Default locations for restored data

When a backup is restored, all files are restored to their original location. When archives are restored they are copied into the directory **`restored`** (relative to the main installation directory).

Restore one of several backups from tape

When more than one backup is placed on a tape and a particular one shall be restored, the name of this backup must be known and the tape must be positioned at the beginning of this backup. The name can be determined by using the **`tar`** command. For example: **`tar tvf /dev/rmt/0mn`**. The positioning is done as described below.

Position tape

If you know the order of the backups on tape, you can position the tape at the beginning of the desired backup as follows: Rewind the tape (e.g with **`mt -f /dev/rmt/0m rewind`**) and issue a **`tar`** command (see example above) until the backup which comes before the one which shall be restored is displayed. If you do not know the order of the backups on the tape, it can be determined as follows: Rewind the tape and then repeatedly issue a **`tar`** command (see example above) until the backup to be restored is displayed while you note the order of the backups on tape. Then you can position the tape as shown above.

3.6.3.3.2 Full restoration procedure

When the restore command is executed the user must decide which image type should be restored. The restore script displays the following message:

```
Please enter the type of the image to be restored [backup/archive]
```

Type **`backup`** or **`archive`** and press **`Enter`**.

Copy of originals

Copies of the original databases are saved to allow for a cancellation of the operation. If such a copy could not be made the appropriate image can nevertheless be restored, but a warning is issued. For each database for which no copy could be made the following message is displayed:

```
Actual <DATABASE TYPE> is not present or ObjectStore copy operation failed.
The AnyMedia NB-EM system state cannot be recovered if a cancellation is requested.
Do you want to continue? [y/n]
```

Type **`y`** and press **`Enter`** to continue with the restore procedure. If you type **`n`** the restore command stops with an error message, no data are restored and the sys-

tem will not work unless a correct restore is performed. When the original databases are present, the message above is not displayed.

Additional incremental backups

While the different databases are restored certain information is displayed on the screen. Then the restoration tool asks whether additional databases should be restored:

```
Do you wish to restore from any additional incremental backups? (yes/no):
```

Type **no** and press **Enter**.

After that the execution of the restore tool finishes and the restoration is complete.

3.6.3.3.3 Incremental restoration procedure

Before a certain incremental backup can be restored the previous full backups and possibly some previous incremental backups must be restored.

The procedure to restore an incremental backup is the same as the above described procedure for a full backup except for the last ("Additional Incremental Backups") step. In that step the restore tool asks for a confirmation that all needed full backups which are a prerequisite for the incremental backup are present. Answer this question affirmatively. After that the execution of the restore tool finishes and the restoration is complete.

3.6.4 Examples for backup schedules

Introduction

This section gives you some examples for typical backup schedules and explains the backup level.

Backup level

Crucial for the understanding of the backup schedules is understanding the backup level. The backup level is a number which is assigned by you to every backup you make. Each time you make a new backup only those files are put on the back-up media which were altered since the last backup with a lower backup level. A backup level "0" means a full backup.

3.6.4.1 Daily cumulative, weekly cumulative backups

This is the most commonly used backup schedule. It is recommended for most situations.

Schedule characteristics

This schedule has the following characteristics:

- Each weekday backup accumulates all files changed since the end of the previous week (or the initial level 0 backup).
- Each Friday's backup contains all files changed since the first level 0 backup. For the level 9 backups, the previous level 0 or level 5 is the closest backup at a lower level.
- Each Friday's backup contains all files changed during the month to that point.

Example

The following table shows the backup levels for each days backup. Once a month, a backup with backup level 0 must be performed.

Table 3-28 Backup levels of each backup

	variable	Mon	Tue	Wed	Thu	Fri
1st of month	0					
1st week		9	9	9	9	5
2nd week		9	9	9	9	5
3rd week		9	9	9	9	5
4th week		9	9	9	9	5

The following table shows how files accumulate in the backup for each weekday.

Table 3-29 Example for files in backup for two weeks

	Mon	Tue	Wed	Thu	Fri
1st week	ab	abc	abcd	abcde	abcdef
2nd week	g	gh	ghi	ghij	abcdefghijk

3.6.4.2 Daily cumulative, weekly incremental backups

Example

The following table shows the backup levels for each days backup. Once a month, a backup with backup level 0 must be performed

Table 3-30 Backup levels of each backup

	variable	Mon	Tue	Wed	Thu	Fri
1st of month	0					
1st week		9	9	9	9	3
2nd week		9	9	9	9	4
3rd week		9	9	9	9	5
4th week		9	9	9	9	6

The following table shows how files accumulate in the backup for each weekday.

Table 3-31 Example for files in backup for two weeks

	Mon	Tue	Wed	Thu	Fri
1st week	ab	abc	abcd	abcde	abcdef
2nd week	g	gh	ghi	ghij	ghijk

3.6.4.3 Daily incremental, weekly cumulative backups

Example

The following table shows the backup levels for each days backup. Once a month a backup with backup level 0 must be done.

Table 3-32 Backup levels of each backup

	variable	Mon	Tue	Wed	Thu	Fri
1st of month	0					
1st week		3	4	5	6	2
2nd week		3	4	5	6	2
3rd week		3	4	5	6	2
4th week		3	4	5	6	2

The following table shows how files accumulate in the backup for each weekday.

Table 3-33 Examples for files in backup for two weeks

	Mon	Tue	Wed	Thu	Fri
1st week	ab	cd	ef	h	abcdefghi
2nd week	jk	lmn	o	p	jklmnopqr

3.7 Log management

The log management records information on events in the AEM. The logged events can be viewed with the Log Viewer.

3.7.1 Different log types

There are six log types within the Log Viewer:

- Actions

  It contains all the information on actions performed by users or the AEM and which imply changes in the AEM configuration, equipment (NE) configuration, service and subscriber configuration, access to the AEM, print reports and backup& restore. That means all operations triggered by the user or the AEM and all subsequent actions. Also the results of operations are logged in the actions log.

- System Internal Events

  It contains all internal events or actions which report unusual changes in the configuration and state of the AEM or indicate errors which occurred in the AEM.

- Autonomous Reports

  It contains all TCAs (Threshold Crossing Alert) from NB and BB and all actions performed in the NEs that imply changes in the AEM data base.

- Alarms

  It contains all alarms received from the platform (AEM), telephony agent and data agent.

- ADSL Performance
- ATM Performance
- Feeders Performance.

3.7.2 Configuration of logs

Log size

The following values can be configured (cf. Appendix B) for the log system by the administrator:

- Minimum number of days (incl. current day) in the log (default: 7 days)
- Maximum size of all logged data (default: 5 Mbyte perNE).

The maximum log size is configured per log type, and applies per NE (each NE can have stored logs of a type up to the maximum size configured for that log type).

Log grows too big

The logs are stored as separate files, one file holds one day of one log type. If the size of the logged data has reached the size limit and a new event to be logged

occurs, some of the already logged data has to be deleted. The oldest recorded day of one of the logs holding the largest number of days is always deleted.

Alarms

The log system issues an alarm if

- one of the logs is shortened to a number of days below the minimum number of days. (I.e. also, if a log is shortened that already holds fewer than the minimum number of days.) Alarm name: LOG_DEL_PART.
- the current day log is deleted. Alarm name: LOG_DEL_FULL.

Restore log files

When log files are restored (cf. Chapter 3.6, page 3-38), the log of the current day is not overwritten.

3.7.3 Log Viewer window

The logs can be viewed by means of the Log Viewer application. The logged entries in the Log Viewer cannot be edited.

Start Log Viewer

The Log Viewer is started-up by clicking on the log viewer icon in the access bar. After start-up the default log type is displayed, this value can be configured (default: "Actions").

Access permission

The log types which are visible to you depend on your user group. The following table shows the log types which the different user groups are allowed to see.

Table 3-34 Visibility of a log type for a certain user group

Log type	Visible for user group
Actions	Administrator, Maintenance
System Internal Events	Administrator, Maintenance
Autonomous Reports (this log type includes autonomous reports, alarms and performance of ADSL, ATM and Feeder)	Administrator, Maintenance, Monitoring

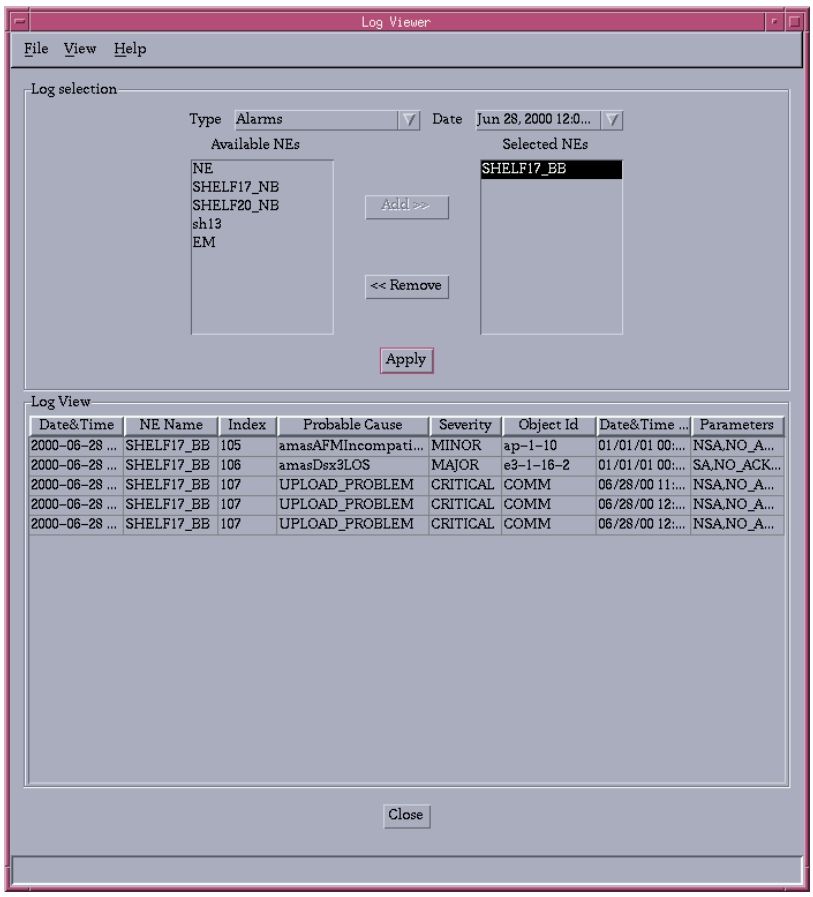

Figure 3-18 Log Viewer

Meaning of columns

The following table explains the meaning of the columns (in alphabetical order) in the Log Viewer table

Table 3-35 Information displayed in the Log Viewer table

Column	Meaning
Conditions	The condition of a performed action, to indicate whether it is the request or the response. (E.g. START, END_SUCCESS, END_ERROR, CANCEL).
Date&Time	Date and time when the event was registered in the log file. Format: "yyyy-mm-dd hh:mm:ss"
Date&Time Last	Indicates the last severity change.
ES/PSES	Indicates the Errored Second data for a E3 or DS3 feeder (BB).
ES Up, ES Down	Indicates the "Errored Second" data (BB).

Table 3-35 Information displayed in the Log Viewer table

Column	Meaning
Event Type	The event which happened in the AEM.
Feeder Type	Indicates the feeder type (E3 or DS3).
HBER Up, HBER Down	Indicates the "High Bit Error Rate" data (BB).
Index	A sequence number for each different alarm reported to the AEM.
Interval	Interval which is used in the performance data. This value can be 15 minutes or one day (BB).
IP-Address	Indicates the IP-Address of the data agent (BB).
LOF	Indicates the "Loss of Frame" data (BB).
Login	The user name of the user performing an action or "EM"
LOS Up, LOS Down	Indicates the "Loss of Signal" data (BB).
Method	A string explaining the performed action.
NE Name	Indicates in *Autonomous Report*, *Performance Logs* and *Alarms* the NE in which the event has happened. "EM" is displayed if the log messages is related to the AEM.
Object Id	Unique identification of the object for which the log message has been sent.
Parameters	■ For Actions and System Internal Events Shows all parameters involved in the action. ■ For Autonomous Reports Shows all TL1 message parameters in the order they were received (for TL1 messages sent from NE) and the TCAs information from the data agent by SNMP trap. ■ For Alarms Shows the rest of the alarm parameters (except description).
Port Id	Indicates the Port Id where the performance data has been recollected (BB).
Probable Cause	A unique identification string for each alarm type shows the probable cause of the alarm.
RcvCells High, RcvCells Low	Indicates the number of cells received (BB), formatted into two 32 bits integers (high and low part of the counter).
RcvErroredCells High, RcvErroredCells Low	Indicates the number of wrong cells received (BB), formatted into two 32 bits integers (high and low part of the counter).

Table 3-35 Information displayed in the Log Viewer table

Column	Meaning
RFI	Indicates the "Remote Failure Indication" data (BB).
Severity	Severity of an alarm on the object for which the log message has been sent.
Shelf Id	Indicates the Shelf Id where the data agent is placed (BB).
Slot Id	Indicates the Slot Id where the performance data has been recollected (BB).
Time Stamp	Date and Time when a performance data was collected in the NE.
UAS	Indicates the "Unavailable Seconds".

Log types and displayed information

Depending on the chosen log type the table in the Log Viewer displays different information (more or less columns). The following table shows which information is displayed for which log type.

Table 3-36 Log types

Log Type	Contents
Actions	Date&Time, Login, Conditions, Object, Method, Parameters
ADSL Performance	Date&Time, NE Name, IP Address, Shelf Id, Slot Id, Port Id, Time Stamp, Interval, LOF, LOS Up, ES Up, HBER Up, RFI, LOS Down, ES Down, HBER Down, Parameters
Alarms	Date&Time, NE Name, Index, Probable Cause, Severity, Object Id, Date&Time Last, Parameters
ATM Performance	Date&Time, NE Name, IP Address, Time Stamp, RcvCells High, RcvCells Low, RcvErroredCells Up, RcvErroredCells Low, Parameters
Autonomous Reports	Date&Time, NE Name, Parameters
Feeders Performance	Date&Time, NE Name, IP Address, Shelf Id, Port Id, Time Stamp, Interval, Feeder Type, ES/PSES, UAS, Parameters
System Internal Events	Date&Time, Object, Event Type, Parameters

Menus and functions

The following table provides an overview of the menus of the Log Viewer and their functions.

Table 3-37 Menus and Functions

Menu Item	Function
File -> New	Start up a new Log Viewer
File -> Print -> Print Table	Print out all logged items displayed in the table of the Log Viewer.
File -> Print -> Print Window	Print a screenshot of the whole window.
File -> Print -> Preview	Shows how it will be printed if the "Print Table" option is used. Opens directly the Print Preview window.
File -> Close	The selected Log Viewer window is closed. Other open Log Viewer windows stay open.
File -> Exit	Close all Log Viewer windows.
Viewer -> Reload Log Data	Update the displayed Log Viewer table with newly logged items.
Viewer -> Reload NE List	Update the NEs Selection list.
Help -> On Window	Display help for Log Viewer
Help -> Index	Display help index.

Actions

The following table lists all actions you can perform in the Log Viewer window.

Table 3-38 Actions in the Log Viewer window

If you want to...	then...	Result
display a certain log type of a specific date and NE	select the desired log type with the pull down control **Log Type,** select the date of interest with the pull down control **Date** and select the NE by using the ***Add >>*** button and press ***Apply***.	The log of the selected type and date of the desired NE is displayed in the Log Viewer table.
view different log types or dates simultaneously	start another Log Viewer with ***File -> New*** and set the desired **Type** or **Date**.	A new Log Viewer window displays the selected log type and date.
print displayed log	select ***File -> Print -> Print Table*** or ***File -> Print -> Print Window***.	The Log Viewer table or a screenshot of the window is printed out.
display updated log	select ***View -> Reload Log Data***	Newly logged entries are displayed.
display updated NEs Selection list	select ***View -> Reload NE List***	The NEs Selection list is updated.

Table 3-38 Actions in the Log Viewer window

If you want to...	then...	Result
sort the log	click on one of the column headers to sort the log according to the column entries alphabetically or by date and time. Click again to reverse the sort order.	The Log Viewer table is displayed sorted alphabetically or by date and time.
close one Log Viewer window	select ***File -> Close*** or press ***Close***	The selected Log Viewer window is closed.
close all Log Viewer windows	select ***File -> Exit***	All Log Viewer windows are closed.

3.8 Disaster recovery

The AEM software has built-in auto recovery features that will allow it to continue working after a problem except in the most critical situations (i.e. corrupted files, hardware failure...). In case of a disaster, the following steps should be performed by the system administrator to repair the AEM and minimize the data loss.

1. Repair/replace any hardware and OS components that may be damaged. Start the system and check that the workstations and network boot properly and the users are able to log into the system.
2. Check if the AEM (including all third-party software) remains installed on the machine. To list all the packages installed type:

   ```
   pkginfo | grep  'application Lu'
   ```

3. Remove all the listed packages using the **pkgrm** command (cf. Chapter 2.2.4, page 2-73).
4. Re-install the AEM software. The procedure is the same as for installing the software for the first time (cf. Chapter 2.2.1, page 2-7).

NOTE:
The packages must be re-installed in the same paths as the original installation, otherwise the data cannot be restored.

5. If any AEM variable was customized, remember to reset it (the installation sets all values to default). Start the AEM server and at least one client. All application windows (Users, Alarms, Configuration) should open but will show only the initial information.
6. Shut down the AEM. Restore the latest backup available (cf. Chapter 3.6, page 3-38). Re-start the AEM server and at least one client. Now the restored data shall be shown and the system will be back at the status prior to the latest backup.

The process between step 2 and step 6 should not take more than 4 hours. If the recovery is not successful call Lucent Technologies Technical Support.

A good backup policy is imperative in order to minimize the data loss (some examples can be found in cf. Chapter 3.6.4, page 3-43).

User management

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User management

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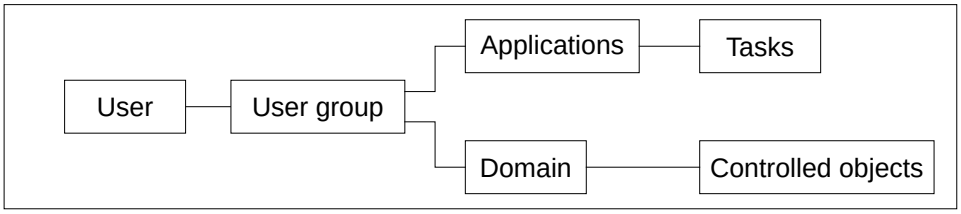
4.1 Introduction

This chapter describes the "User Administration and Profiling" application of the *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7. It allows to

- create/modify/delete users
- assign/unassign users to/from user groups
- create/modify/delete user groups
- assign/unassign user groups access to/from applications, tasks and domains
- create/modify/delete domains
- assign/unassign controlled objects to/from domains.

NOTE:
All actions can only be done by the AEM administrator!

The following figure shows the relation between user, user group, applications and tasks, domains and controlled objects.



The "User Administration and Profiling" application is started via the AEM access bar by clicking on the third icon.

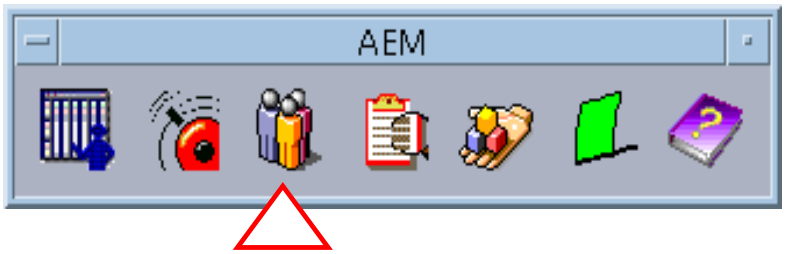


Figure 4-1 Access bar

4.2 User

4.2.1 Create user

Introduction

This chapter describes the process to add a new user to the system. Before adding a new user to the system, please pay attention to the following remarks:

- The AEM administrator must have a system login.
- The user must be created via OS.
- The AEM administrator should know the login ID of the user to be created and the group the user shall belong to.

Procedure

Complete the following procedure to add a new user:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up showing the *Users Table*.

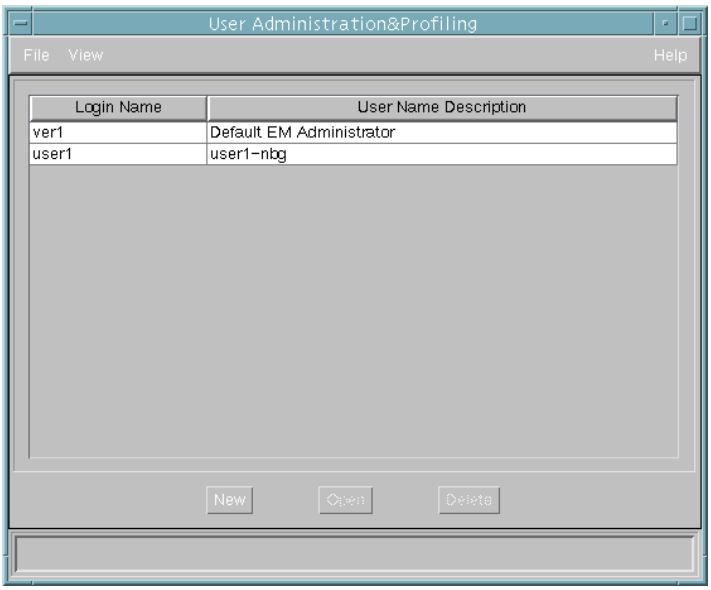


Figure 4-2 User Administration & Profiling window (Users table)

3. Click ***New***. The *User Profile* window pops up.

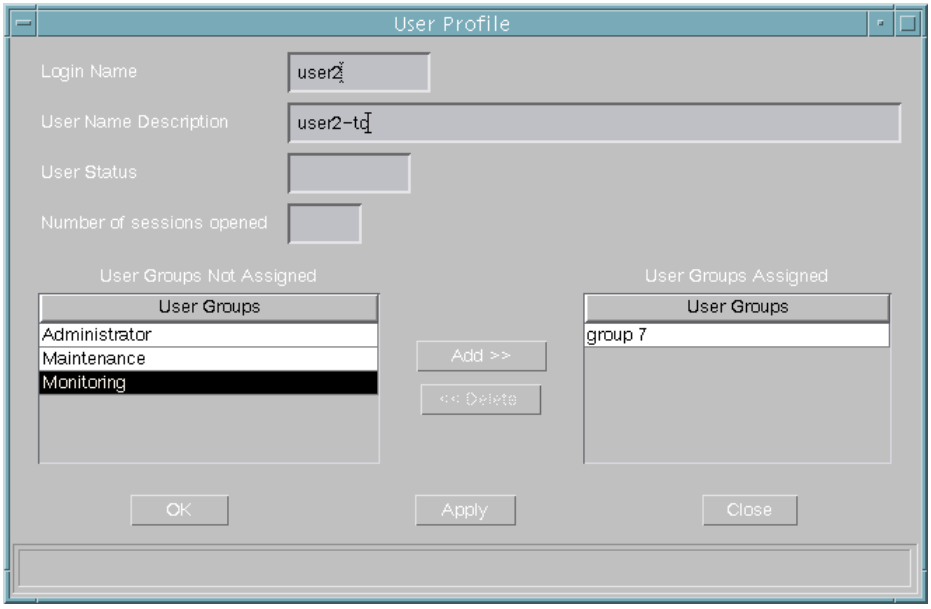


Figure 4-3 User Profile window

4. Enter a new login name in the **Login Name** field (this is mandatory - 3 to 12 characters) and extra information like last name, first name, email, etc. in the **User Name Description** field (this is optional - 0 to 60 characters). Any characters are allowed.

5. Select one or more user groups the user shall belong to in the **User Groups Not Assigned** field and click ***Add>>***.

NOTE:
To create user groups see Chapter 4.4.1, page 4-14.

6. Click ***OK*** or ***Apply*** to save the settings (the system ensures that the new user does not yet exist in the system). After clicking ***OK*** the window will be closed.
   If you want to reject the settings, click ***Close*** before ***OK*** or ***Apply***.

The other fields are described in Chapter 4.2.2, page 4-5.

4.2.2 Modify user

Introduction

This chapter describes the process to modify the information or profile of a user. Before modifying the information or profile of a user, please pay attention to the following remarks:

- To modify the information or profile of a user the AEM administrator must have a NIS based login.
- The AEM administrator is not able to change the system login information of a user, i.e. system login and password.

Procedure

Complete the following procedure to modify the information or profile of a user:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up showing the *Users Table*.

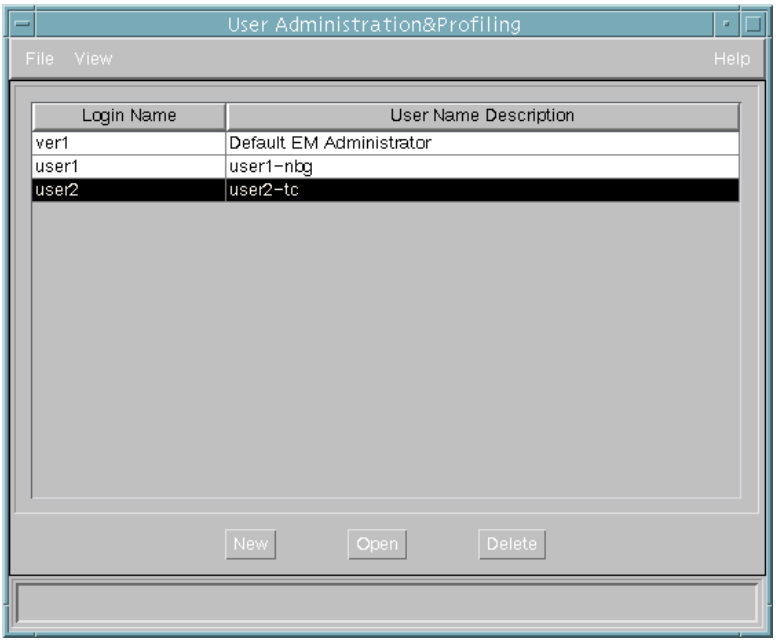


Figure 4-4 User Administration & Profiling window (Users Table)

3. Select one user of the **Login Name** field and click ***Open***.
The *User Profile* window pops up with the current information about the selected user.

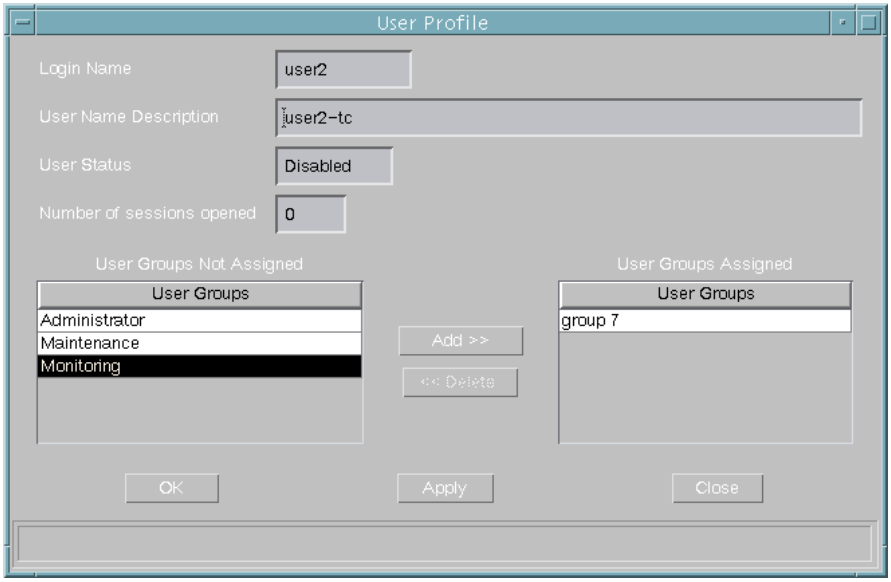


Figure 4-5 User Profile window

Change user name description

To change the user name description like last name, first name, email, etc., enter the new information in the **User Name Description** field (0 to 60 characters). Any characters are allowed.

Adding to user groups

To assign the selected user to further user groups, select one or more user groups in the **User Groups Not Assigned** field and click ***Add>>***.

NOTE:
To create user groups see Chapter 4.4.1, page 4-14.

Removing from user groups

To remove the selected user from user groups, select one or more user groups in the **User Groups Assigned** field and click ***<<Remove***.

Click ***OK*** or ***Apply*** to save the changes. After clicking ***OK*** the window will be closed. If you want to reject the changes, click ***Close*** before ***OK*** or ***Apply***.

Other fields (read-only)

The following fields are read-only fields to display user data:

Login Name:
Displays the label which identifies the user.

User Status:
Displays if the system login associated to this user is created (enabled) or deleted (disabled).

Number of sessions opened:
Displays the number of sessions opened into the AEM by the user.

4.2.3 Delete user

Introduction

This chapter describes the process to remove a user from the AEM. Before removing a user, please pay attention to the following remarks:

- To remove a user from the AEM the administrator must have a system login.
- When a user is deleted, all related information and profiles are removed from the system. This does not include the system login and any other system resources such as home directories or system files which are not managed by the AEM. Furthermore, the user is automatically deleted from the user groups it was included in.
- Before deleting any user assigned to the administrator user group, the AEM checks that this is not the last user assigned to the administrator user group. If this is the last one assigned, the deletion is rejected.

Procedure

Complete the following procedure to remove a user from the AEM:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up showing the *Users Table*.

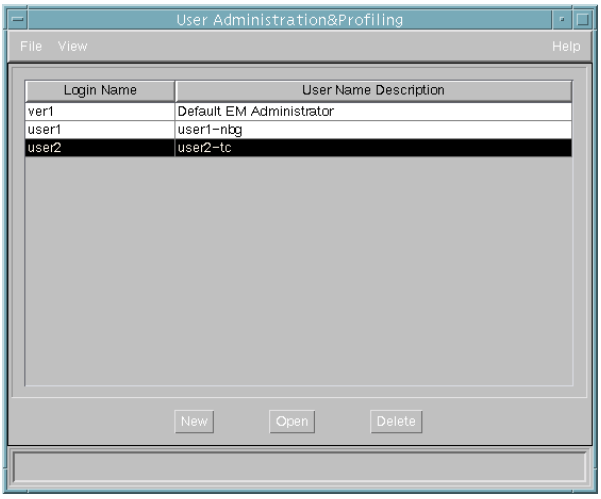


Figure 4-6 User Administration & Profiling window (Users Table)

3. Select the user which shall be deleted in the **Login Name** field and click ***Delete***.
4. Confirm your selection. The window will be closed.

4.3 Domains

4.3.1 Create domains

Introduction

This chapter describes the process to create a new domain. Before creating a new domain, please pay attention to the following remarks:

- The AEM administrator must have a system login.
- The controlled objects are defined as sets of managed NEs.
- Only "EM" and "NE" controlled object types are supported.

NOTE:
An "EM" object is generated by default with "Type: EM" and "Value: AnyMedia" which cannot be deleted.

Procedure

Complete the following procedure to create a new domain:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> Domains*** via menu bar. The *Domains Table* appears.

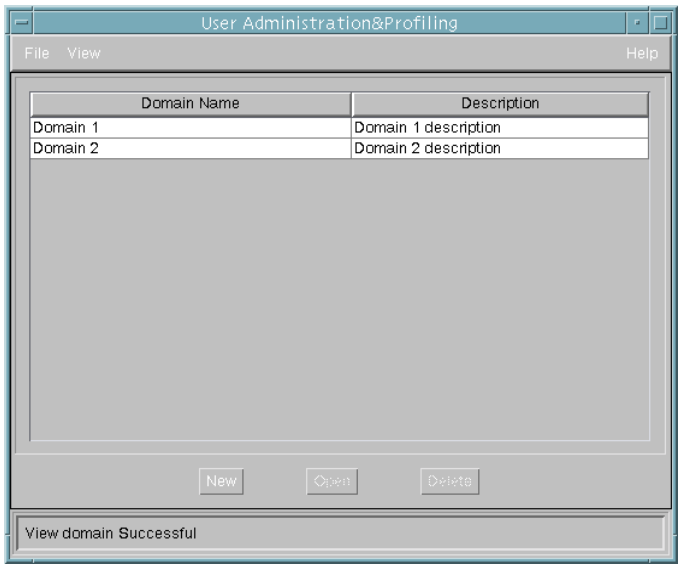


Figure 4-7 User Administration & Profiling window (Domains Table)

4. Click ***New***.
The *Domain Profile* window pops up.

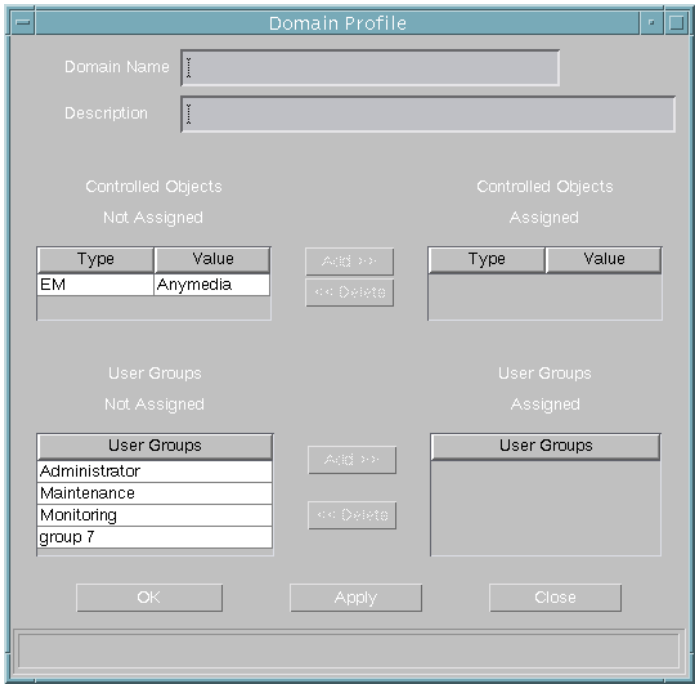


Figure 4-8 Domain Profile window

5. Enter a new domain name in the **Domain Name** field (this is mandatory - 3 to 30 characters) and extra information in the **Description** field (this is optional - 0 to 60 characters). Any characters are allowed.

6. Select one or more controlled objects that shall belong to the new domain in the **Controlled Objects Not Assigned** field and click ***Add>>***.

NOTE:
Each controlled object consists of two fields: *Type* and *Value*.

7. Select one or more user groups that shall have access to the new domain in the **User Groups Not Assigned** field and click ***Add>>***.

NOTE:
To create user groups see Chapter 4.4.1, page 4-14.

8. Click ***OK*** or ***Apply*** to save the settings (the system ensures that the new domain does not yet exist in the system). After clicking ***OK*** the window will be closed. If you want to reject the settings, click ***Close*** before ***OK*** or ***Apply***.

The other fields are described in Chapter 4.3.2, page 4-10.

4.3.2 Modify domains

Introduction

This chapter describes the process to modify the information of a domain, e.g. which devices it includes, etc. Before modifying the information of a domain, the AEM administrator must have a system login.

Procedure

Complete the following procedure to modify the information of a domain:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> Domains*** via menu bar. The *Domains Table* appears.

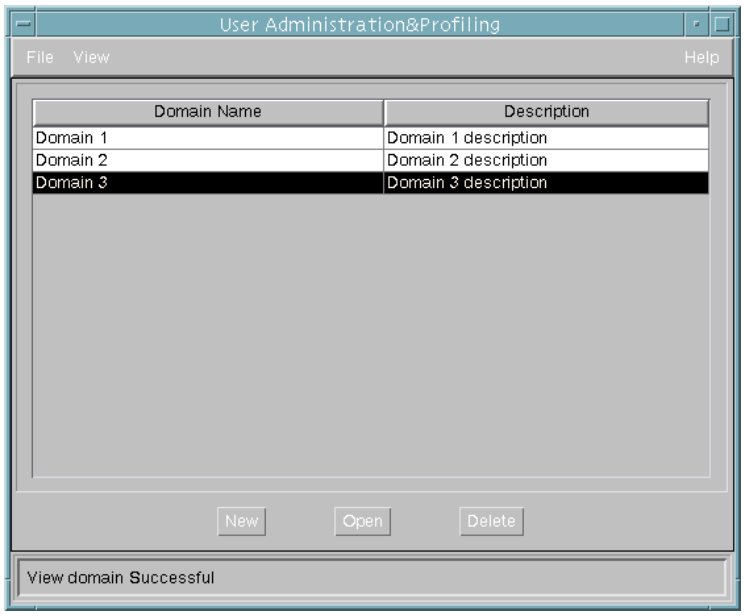


Figure 4-9 User Administration & Profiling window (Domains Table)

4. Select one domain in the **Domain Name** field and click ***Open***.
The *Domain Profile* window pops up with the current information about the selected domain.

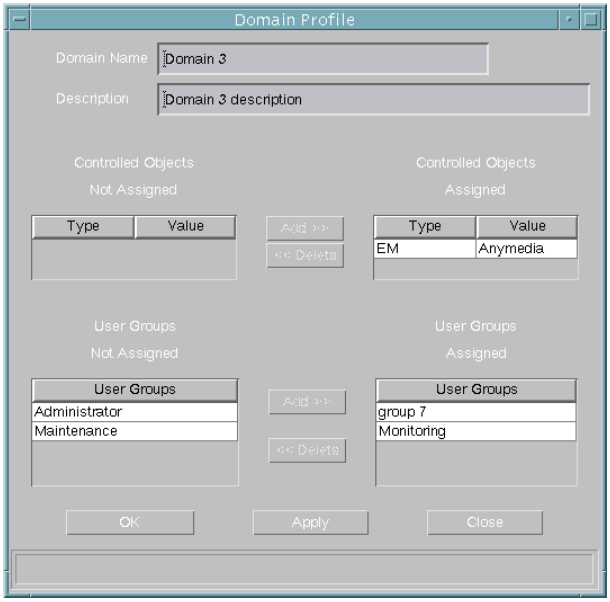


Figure 4-10 Domain Profile window

Change domain name

To change the domain name, enter the new name in the **Domain Name** field (3 to 30 characters). Any characters are allowed.

Change domain description

To change the domain description, enter the new information in the **Description** field (0 to 60 characters). Any characters are allowed.

Adding controlled objects

To assign further controlled objects to the selected domain, select one or more controlled objects in the **Controlled Objects Not Assigned** field and click ***Add>>***.

NOTE:
Each controlled object consists of two fields: *Type* and *Value*.

Removing controlled objects

To remove assigned controlled objects from the selected domain, select one or more controlled objects in the **Controlled Objects Assigned** field and click ***<<Remove***.

NOTE:
Each controlled object consists of two fields: *Type* and *Value*.

Adding user groups

To give further user groups access to the selected domain, select one or more user groups in the **User Groups Not Assigned** field and click ***Add>>***.

NOTE:
To create user groups see Chapter 4.4.1, page 4-14.

Removing user groups

To remove assigned user groups from the selected domain, select one or more user groups in the **User Groups Assigned** field and click ***<<Remove***.

Click ***OK*** or ***Apply*** to save the changes. After clicking ***OK*** the window will be closed.
If you want to reject the changes, click ***Close*** before ***OK*** or ***Apply***.

4.3.3 Delete domains

Introduction

This chapter describes the process to remove a domain from the AEM. Before removing a domain, please pay attention to the following remarks:

- The AEM administrator must have a system login.
- Before deleting a domain, the AEM ensures that there are no controlled objects assigned to this domain. If this is the case, the deletion request will be rejected.
- After a domain deletion, all related information will be removed from the AEM. This does not include the devices (NEs or any other type) which are grouped in that domain or their information. Furthermore, the access permission will be automatically unassigned from the user groups that had access to this domain.

Procedure

Complete the following procedure to remove a domain:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> Domains*** via menu bar The *Domains Table* appears.

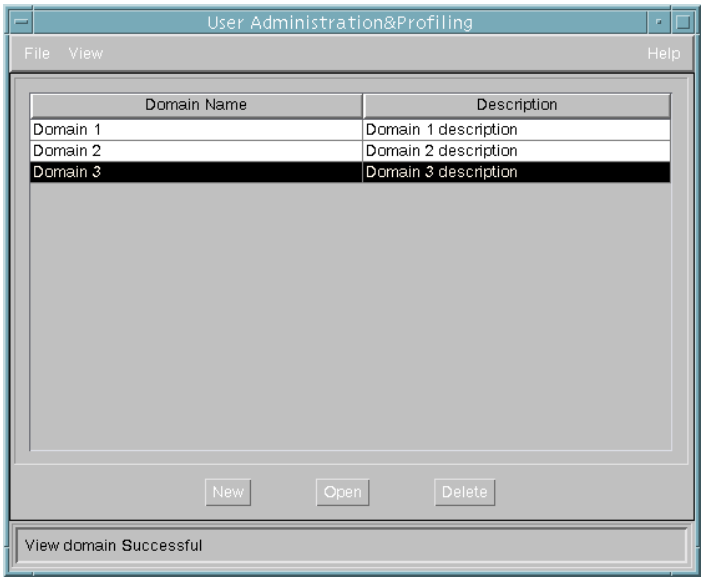


Figure 4-11 User Administration & Profiling window (Domains Table)

4. Select the domain which shall be deleted in the **Domain Name** field and click ***Delete***.

5. Confirm your selection. The window will be closed.

4.4 User groups

4.4.1 Create user groups

Introduction

This chapter describes the process to create a new user group. Before creating a new user group, please pay attention to the following remarks:

- By default the AEM provides three user groups: Administrator, Maintenance and Monitoring.
- The administrator user group has access permissions to all applications and tasks.
- Before a user group can be created, modified or deleted the AEM administrator must have a system login.
- Applications are divided into tasks. A user can be assigned a whole application or only a subset of its tasks.

Procedure

Complete the following procedure to create a new user group:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> User Groups*** via menu bar The *User Groups Table* appears.

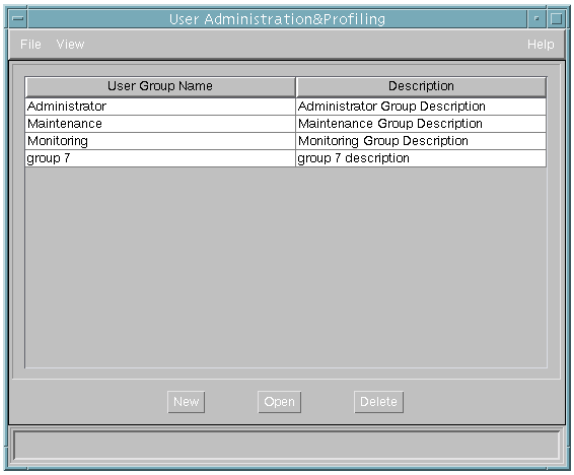


Figure 4-12 User Administration & Profiling window (User Groups Table)

4. Click ***New***. The *User Group Profile* window pops up.

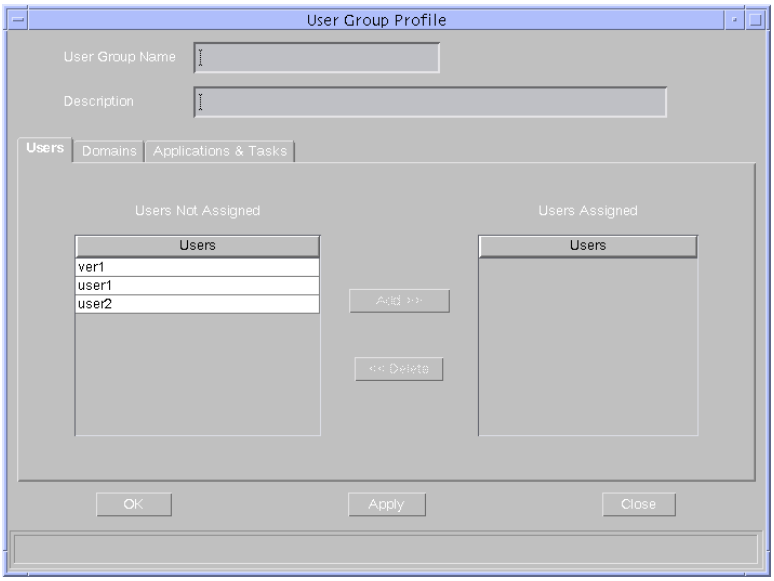


Figure 4-13 User Group Profile window (tab Users)

5. Enter a new user group name in the **User Group Name** field (this is mandatory - 3 to 30 characters) and extra information in the **Description** field (this is optional - 0 to 60 characters). Any characters are allowed.

6. Select one or more users that shall belong to the new user group in the **Users Not Assigned** field and click ***Add>>***.

NOTE:
To create user see Chapter 4.2.1, page 4-3.

7. Change to tab ***Domains***. The window changes its display as shown below.

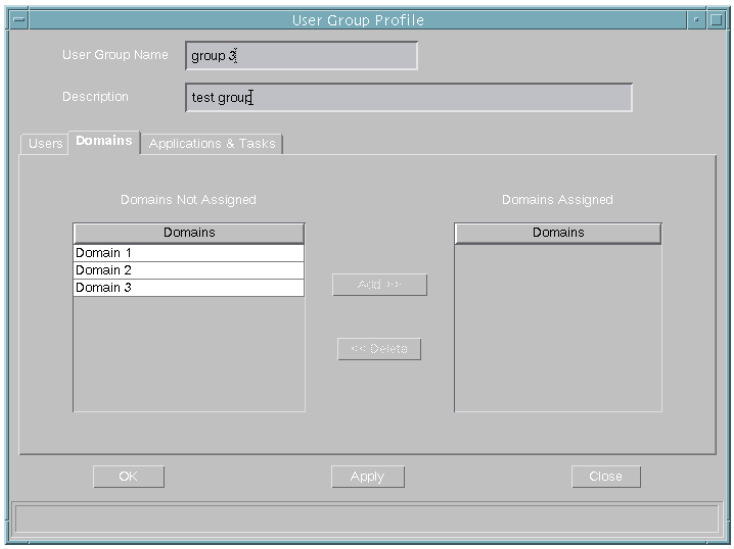


Figure 4-14 User Group Profile window (tab Domains)

8. Select one or more domains the user group shall has access to in the **Domains Not Assigned** field and click ***Add>>***.

NOTE:
If access permission to a domain is granted to a user group, that permission will be automatically granted for each controlled object within that domain.

NOTE:
To create domains see Chapter 4.3.1, page 4-8.

For carrying out the next three steps (10, 11 and 12) please pay attention to Table 4-1. It provides an overview about the access permissions the user groups shall have.

Table 4-1 Assignment of user groups to applications/tasks

Application	Task	User Group
System Administration	Process Management	Administrator
User Administration & Profiling	Access Policy Management	Administrator
	Domain Management	Administrator

Table 4-1 Assignment of user groups to applications/tasks

Application	Task	User Group
Log Viewer	Actions	Administrator, Maintenance
	System Internal Events	Administrator, Maintenance
	Autonomous Report	Administrator, Maintenance, Monitoring
Alarm Viewer	Alarms Acknowledge	Administrator, Maintenance
	Alarms View[a]	Administrator, Maintenance, Monitoring
	Alarms Clear	Administrator, Maintenance
Groups and NEs Management	Equipment and Service Provisioning	Administrator, Maintenance
	Configuration View[a]	Administrator, Maintenance, Monitoring
	Test Management	Administrator, Maintenance, Monitoring
	Cut-through Management	Administrator
	Groups and NEs Configuration	Administrator, Maintenance
	Performance Management	Administrator, Maintenance, Monitoring

a If the VIEW task is unassigned but other tasks are still assigned, these tasks are left as assigned to this user group. But the user is not able to perform any kind of operation over these tasks until the VIEW task is assigned again.

The most of the task names are self-described, but other tasks needs a deeper description:

Access Policy Management provides the functionality to:

- create/modify/delete AEM users
- create/modify/delete AEM user groups
- create/modify/delete AEM domains
- create/modify/delete assignments between AEM users and AEM user groups
- create/modify/delete access assignments between AEM user groups and applications/tasks
- create/modify/delete access assignments between AEM user groups and domains
- modify assignments between domains and controlled objects.

Domain Management provides the functionality to:

- modify assignments between domains and controlled objects.

Autonomous Reports provides the functionality to:

- view logs od log types (autonomous reports, alarm and performance logs).

Groups and NEs Configuration provides the functionality to:

- create/modify/delete NEs
- create modify/delete groups of NEs.

9. Change to tab ***Applications & Tasks***. The window changes its display as shown below.

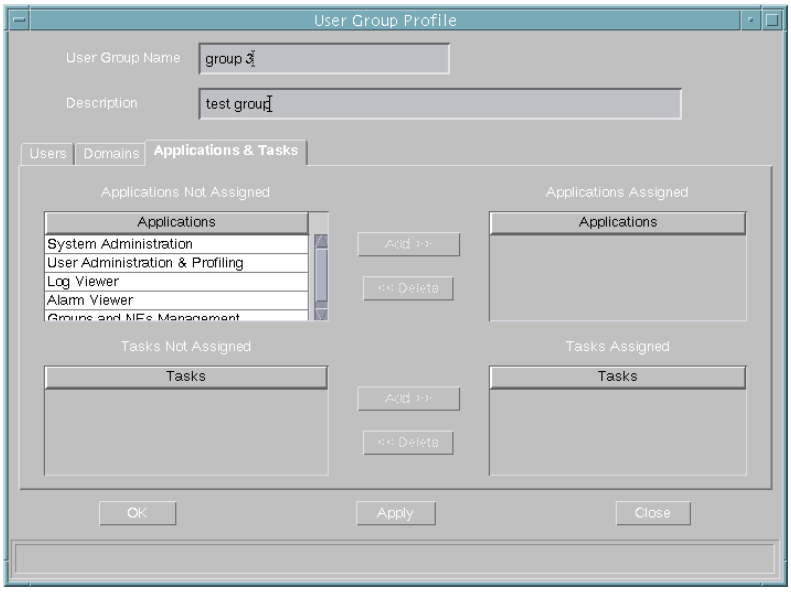


Figure 4-15 User Group Profile window (tab Applications & Tasks)

10. Select one or more applications the user group shall has access to in the **Applications Not Assigned** field and click ***Add>>***.
The corresponding tasks are displayed for selection.

11. Select one or more tasks the user group shall has access to in the **Tasks Not Assigned** field and click ***Add>>***.

12. Click ***OK*** or ***Apply*** to save the settings (the system ensures that the new user does not yet exist in the system). After clicking ***OK*** the window will be closed.
If you want to reject the settings, click ***Close*** before ***OK*** or ***Apply***.

The other fields are described in Chapter 4.4.2, page 4-19.

4.4.2 Modify user groups

Introduction

This chapter describes the process to modify the properties of a user group. Before modifying the properties of a user group, please pay attention to the following remarks:

- The AEM administrator must have a system login.
- The administrator user group has access permissions to all applications and tasks and these access permissions cannot be modified.

Procedure

Complete the following procedure to create a new user group:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> User Groups*** via menu bar The *User Groups Table* appears.

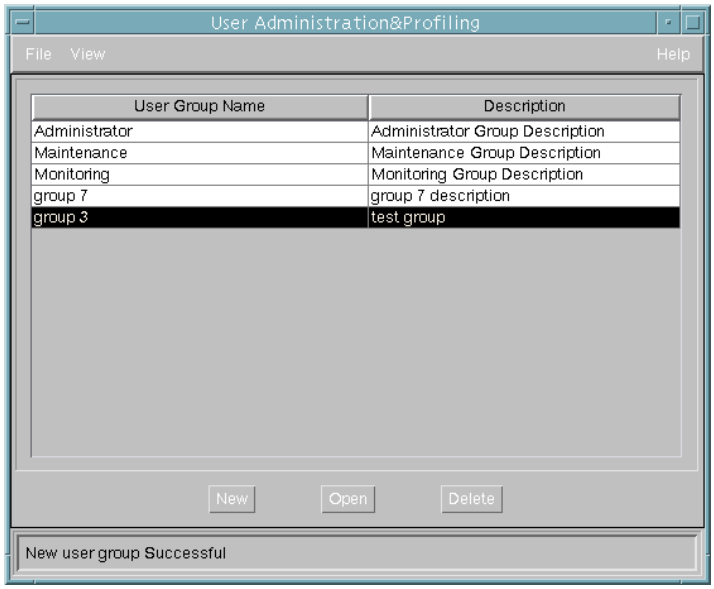


Figure 4-16 User Administration & Profiling window (User Groups Table)

4. Select one user group of the **User Group Name** field and click ***Open***.
The *User Group Profile* window pops up with the current information about the selected user group.

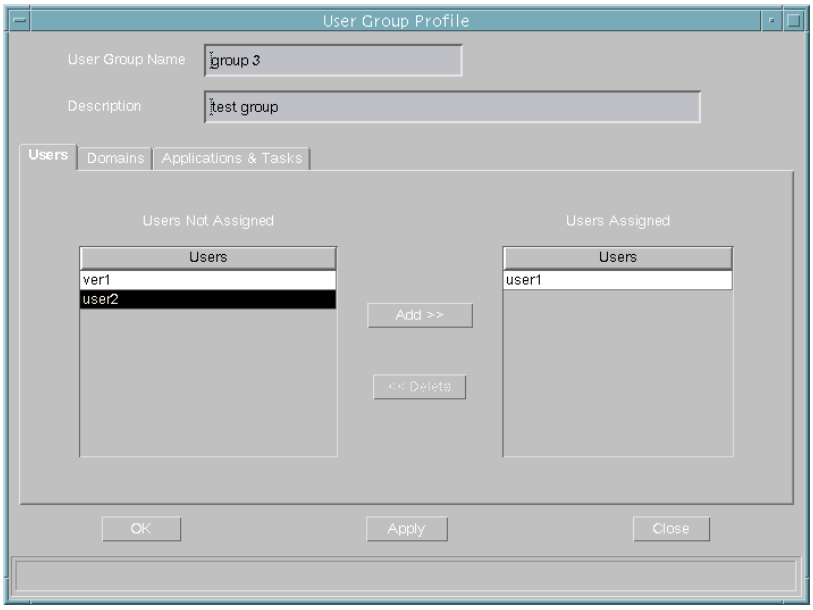


Figure 4-17 User Group Profile window (tab Users)

Change user group name

To change the user group name, enter the new name in the **User Group Name** field (3 to 30 characters). Any characters are allowed.

Change user group description

To change the user group description, enter the new information in the **Description** field (0 to 60 characters). Any characters are allowed.

Adding users

To assign further users to the selected user group select one or more users in the **Users Not Assigned** field and click ***Add>>***.

NOTE:
To a create user see Chapter 4.2.3, page 4-7.

Removing users

To remove assigned users from the selected user group select one or more users in the **Users Assigned** field and click ***<<Remove***.

NOTE:
The last user of user group administrator is protected against deletions.

Adding to domains

To give the selected user group access to further domains, change to tab ***Domains***. The window changes its display as shown below.

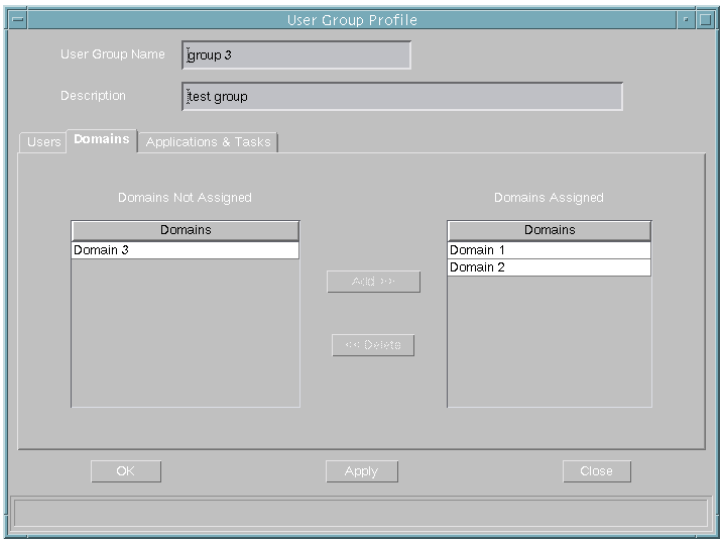


Figure 4-18 User Group Profile window (tab Domains)

Select one or more domains in the **Domains Not Assigned** field and click ***Add>>***.

NOTE:
If access permission to a domain is granted to a user group, that permission will be automatically granted for each controlled object within that domain.

NOTE:
To create domains see Chapter 4.3.1, page 4-8.

Removing from domains

To disable the access to domains select one or more domains in the **Domains Assigned** field and click ***<<Remove***.

NOTE:
The administrator user group has access permissions to all domains and this access permissions cannot be modified.

Adding applications

To give the selected user group access to further applications, change to tab ***Applications & Tasks***. The window changes its display as shown below.

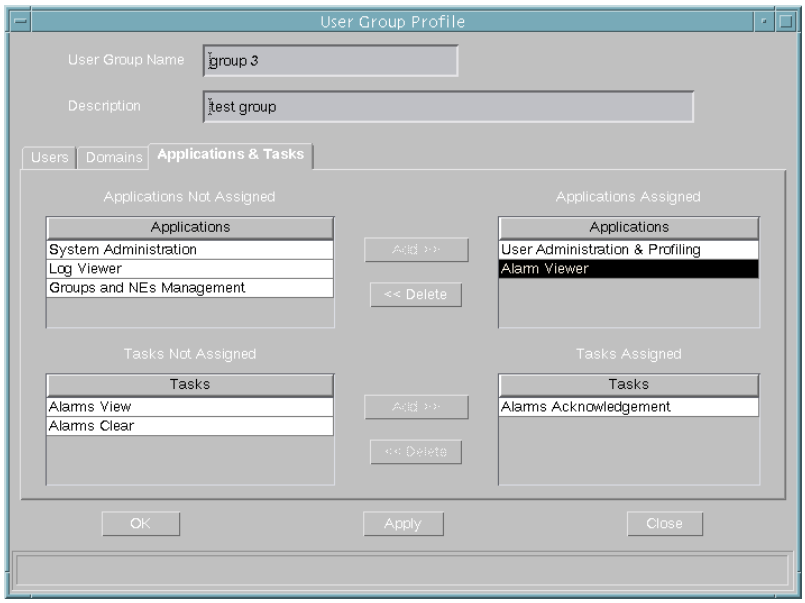


Figure 4-19 User Group Profile window (tab Applications & Tasks)

Select one or more applications in the **Applications Not Assigned** field and click ***Add>>***.

NOTE:
For this action please pay attention to Table 4-1, page 4-16.

Removing applications

To disable the access to applications select one or more applications in the **Applications Assigned** field and click ***<<Remove***. For this action please pay attention to Table 4-1, page 4-16.

NOTE:
The administrator user group has access permissions to all applications and this access permissions cannot be modified.

NOTE:
If the user select an application in the Applications Assigned field, all tasks that are under it will be expanded in the Tasks Assigned and Tasks Not Assigned fields.

Adding tasks

To give the selected user group access to further tasks, select one or more tasks in the **Tasks Not Assigned** field and click ***Add>>***.

NOTE:
For this action please pay attention to Table 4-1, page 4-16.

Removing tasks

To disable the access to one or more tasks, select one or more tasks in the **Tasks Assigned** field and click ***<<Remove***. For this action please pay attention to Table 4-1, page 4-16.

NOTE:
If the task "View" is removed from the Alarm Management or Groups and NEs Management the remaining tasks from the respective application are no more possible (but not removed).

NOTE:
The administrator user group has access permissions to all tasks and this access permissions cannot be modified.

5. Click ***OK*** or ***Apply*** to save the changes. After clicking ***OK*** the window will be closed. If you want to reject the changes, click ***Close*** before ***OK*** or ***Apply***.

4.4.3 Delete user groups

Introduction

This chapter describes the process to remove a user group from the AEM. Before removing a user group, please pay attention to the following remarks:

- The AEM administrator must have a system login.
- The administrator user group is protected against deletions.
- After a user group deletion, all related information is removed from the AEM. This does not include the contained users or their information, but these users will lose the ability to invoke the applications, tasks, devices and maps for which the user group had permission.

Procedure

Complete the following procedure to remove a user group:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> User Groups*** via menu bar. The *User Groups Table* appears.

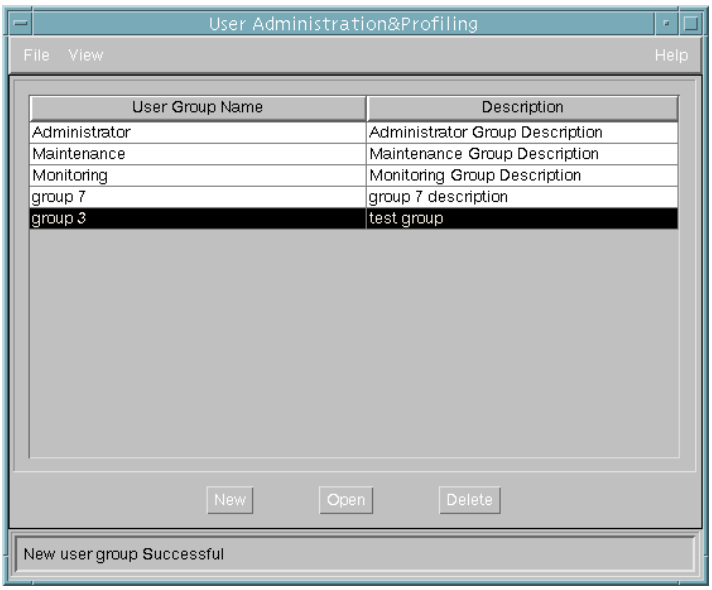


Figure 4-20 User Administration & Profiling window (User Groups Table)

4. Select the user group which shall be deleted in the **User Group Name** field and click ***Delete***.

NOTE:
The administrator user group is protected against deletion.

5. Confirm your selection. The window will be closed.

4.5 Controlled objects

4.5.1 Modify controlled objects

Introduction

This chapter describes the process to modify the information about existing controlled objects. The controlled object creation and deletion are not covered by this document. For NE creation and deletion refer to Chapter 5.5.1 and Chapter 5.5.18.

Before modifying the information about any controlled object the AEM administrator must have a system login.

Procedure

Complete the following procedure to modify the information about existing controlled objects:

Step	Procedure
1.	Login as AEM administrator and start the AEM access bar as described in Chapter 3.2.1. The access bar will be shown.
2.	Select the **User Administration & Profiling** icon. The *User Administration & Profiling* window pops up.
3.	Select ***View -> Controlled Objects*** via menu bar. The *Controlled Objects Table* appears.

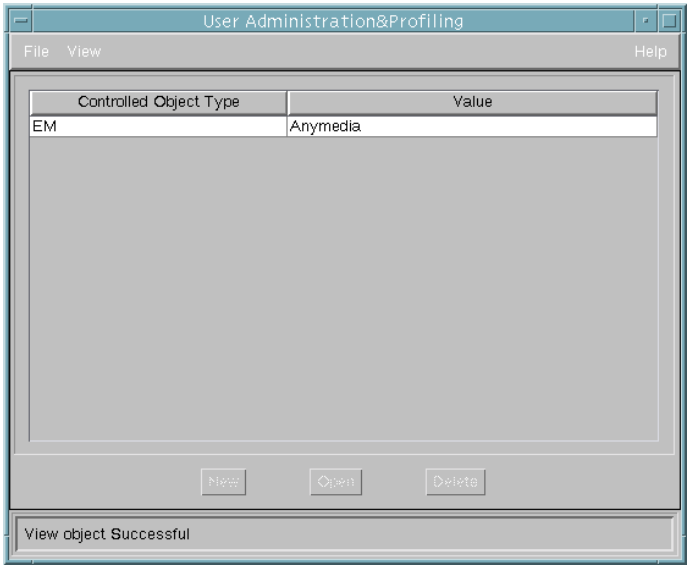


Figure 4-21 User Administration & Profiling window (Controlled Objects Table)

4. Select one controlled object type in the **Controlled Object Type** field and click ***Open***.
The *Controlled Object Profile* window pops up with the current information about the selected controlled object.

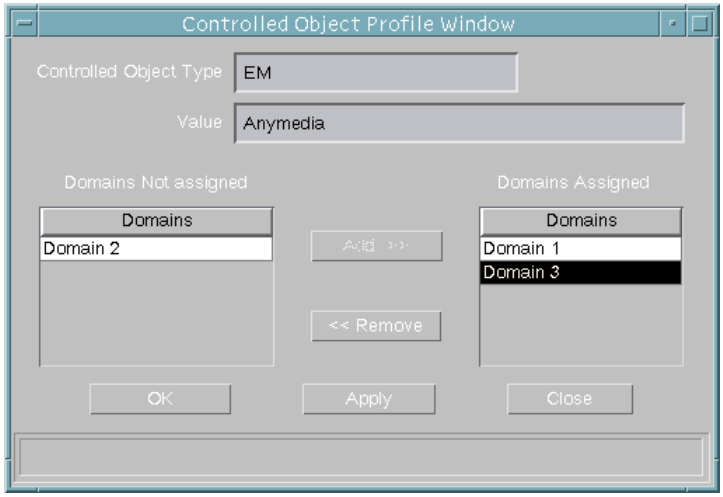


Figure 4-22 Controlled Object Profile window

Adding to domains

To assign the selected controlled object to further domains, select one or more domains in the **Domains Not Assigned** field and click ***Add>>***.

NOTE:
To create domains see Chapter 4.3.1, page 4-8.

Removing from domains

To remove the selected controlled object from domains, select one or more domains in the **Domains Assigned** field and click ***<<Remove***.

NOTE:
The "EM" object generated by default is protected against deletion.

Click ***OK*** or ***Apply*** to save the changes. After clicking ***OK*** the window will be closed. If you want to reject the changes, click ***Close*** before ***OK*** or ***Apply***.

Other fields (read-only)

The following fields are read-only fields to display data of the selected controlled object:

Controlled Object Type:
Displays the controlled object type. Possible values are *EM* and *NE*.

Value:
Displays the characteristics of the selected controlled object. If the controlled object is *EM* it displays "AnyMedia", if it is *NE* it displays the NE Id number.

NE management/equipment configuration

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5.1 Overview

This chapter describes the "Groups and NEs Management" application of the *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7. It addresses the following topics:

- Overview of the controlled *AnyMedia* Access System
- Explanation of menu bar, Network Browser and Network Element Browser
- Map handling
- Screen navigation
- NE management
- Equipment configuration.

5.2 Overview of the controlled systems

This section provides a short overview of the controlled *AnyMedia* Access Systems. For more information please refer to the network element documentation for

- Telephony (24-channe,l narrowband) releases R1.2.1, R1.2.2 and R1.7.0
- Data (broadband) releases R1.1.2 and R1.4.

AnyMedia Main-shelf configuration

The AEM R1.7 is able to control NEs with the following configuration:

- Telephony-only configuration
- Data-only configuration
- Mixed telephony and data configuration.

5.2.1 Network element releases R1.2.1

The architecture of the *AnyMedia* Access Systems is a single shelf with the following main components as shown in Figure 5-1, page 5-3:

Packs

- Up to 6 IO_DS1 packs
- Up to two common data and control (COMDAC) packs
- One craft test unit (CTU) pack
- Up to 16 application packs (APs)
  - 32-line 2WCF programmable: PROG2W (POTS 32/512 or PROG32)
  - 32-line 2WCF POTS only (POTS32).
  - 24-line 2W programmable special/Coin (PRCOIN or PROG1_CF)
  - 16-line ANSI ISDN (ISDN AP or SDN16_u)
  - AFMDS3: The access feeder multiplexer card provides a DS3 ATM interface for ADSL traffic - data application. The AFMDS3 is inserted in slot 16 (FAST shelf) or slot 0 (BAIU shelf).
  - ADSL: The ADSL packs provide four/eight ADSL subscriber line terminations each (LPA400/LPA408) - data application.
  - Metallic distribution server units (MDSUs):
    The *AnyMedia* Access System supports the MDS2 and MDS2B shelves (Chapter 5.2.1.1, page 5-3) for installation of subscriber loop carrier (SLC) channel units. Only narrowband transmission is planned for these shelves. They are connected via an electrical interface through one or two MDSUs that, in effect, extend the PCM highway from the *AnyMedia* Access System backplane to the MDS2/MDS2B. An MDSU can be located in any AP slot; however, the MDSUs will normally be located in AP slots 14 and 15 to simplify shelf cabling. One MDSU extends 1.5 PCM highways to a metallic shelf controller (MSC) in the MDS2/MDS2B shelf. In order to extend 3 PCM highways to both sections of the MDS2/MDS2B shelf, two MDSUs must be installed (MSU100 - SAPQADMBAA).

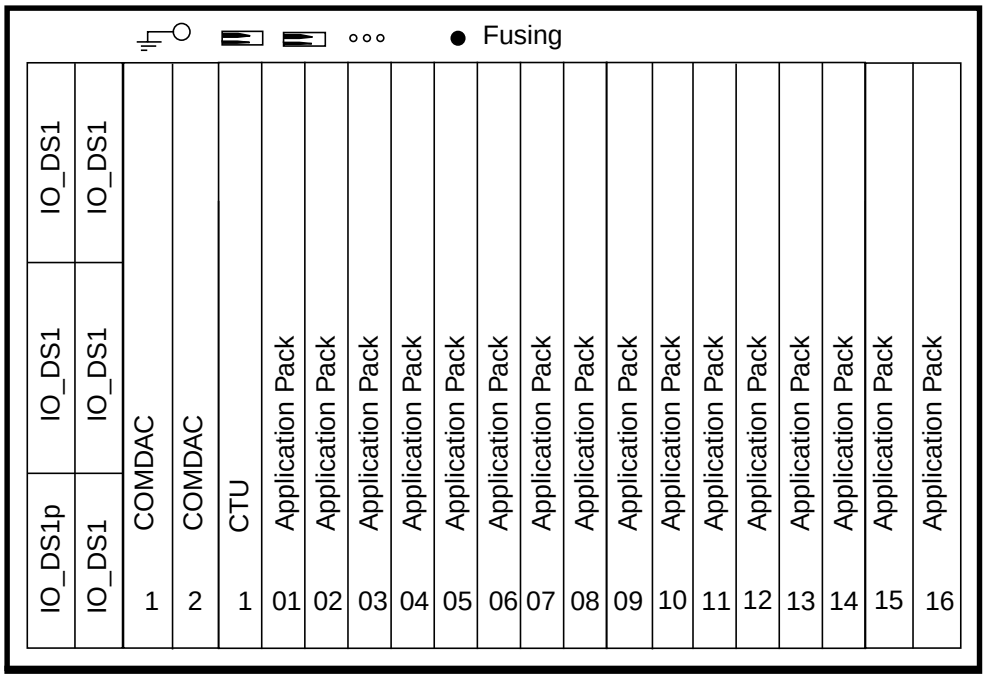


Figure 5-1 ***AnyMedia*** **shelf layout**

5.2.1.1 MDS2/MDS2B shelf layout

Connection with main shelf

The use of the metallic distribution shelf (MDS2 or MDS2B) is optional. If it is used, one or two *AnyMedia* Access System AP slots are equipped with the MDSU, each of which connects to an MSC in the MDS2/MDS2B shelf. The MDS2/MDS2B shelf, based on the SLC-2000 MDS, has the capacity to hold 24 SLC (SPQ or AUA) channel units and to serve up to 96 DS0-rate services.

The MDS2/MDS2B Shelf is used to provide specials via SPQ/AUA Channel Units. A maximum of one MDS2/MDS2B Shelf is supported per *AnyMedia* Access System. The shelf can serve up to 96 DS0s in 24 slots; each MDSU pack on the *AnyMedia* Access System shelf can serve up to 48 DS0s and up to 12 channel units (CU). The MDSU APs primarily serve as pass-through for the PCM transmission and the UART messages. All control messages to and from the MDS2/MDS2B shelf are routed through the MDSU packs; the MDSU-1 pack serves the first 12 slots (slots 1 through 12) on the MDS2, the MDSU-2 pack serves the remaining 12 (slots 13 through 24).

The MDS2/MDS2B shelf may be equipped so that only half of the shelf is operational (12 channel units). In this case, only one MDSU is needed in the *AnyMedia* shelf. A partially-equipped (half) MDS2/MDS2B shelf requires one power test unit (PTU) and one MSC.

The MDSUs utilize the same timing signals as the narrowband APs. A single 8-MHz clock and 8-kHz sync are supplied by an MDSU to an MCS in the MDS2/

MSD2B for timing the MDS2/MSD2B link. Side selection of the clock and sync from the COMDACs is performed by the MDSU.

The MDS2 shelf shown in Figure 5-2 is arranged to accommodate 12 CU packs, one PTU and one MSC pack per section. The first, or left, section is a mirror image of the second, or right, section.

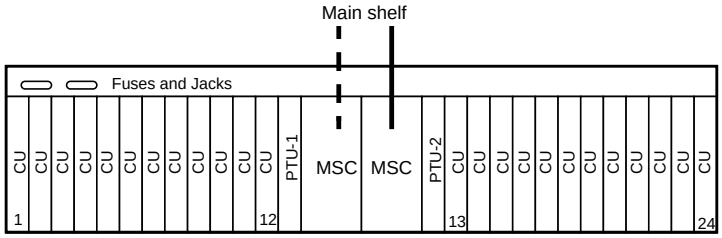


Figure 5-2 MDS2 shelf layout (R1.2)

The MDS2B shelf shown in Figure 5-3 is arranged to accommodate 12 CU packs, one PTU and one MSC pack per section. The first, or top, section is a mirror image of the second, or bottom, section.

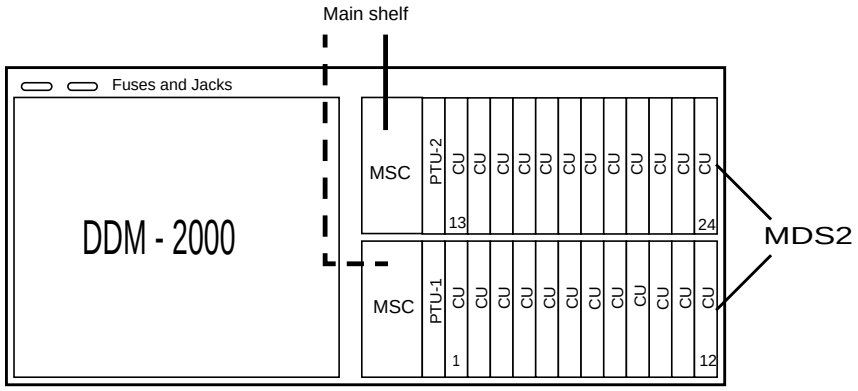


Figure 5-3 MDS2B shelf layout

Metallic shelf controller

The MSC provides the required shelf interface and central control for half of the shelf. Each MSC is two slots wide but has only one backplane connector. An 8-MHz MDS2 link is provided to interface with the *AnyMedia* Access System shelf. On the distribution side the MSC supports 3 4.096-Mbps PCM links for connecting 12 channel units. The MSC performs the following functions:

- Translates between 1.5 *AnyMedia* Access System PCM highways and 3 SLC carrier format PCM buses
- Performs rate conversion from incoming 8-MHz link and distributes timing and synchronization to CUs

- Translates between one *AnyMedia* Access System UART link and the SLC carrier bank controller link (BCL) and PTU control interfaces
- Control and monitoring for CUs and PTUs
- Composite clock input and digital data system (DDS) timing distribution to CUs
- Supports signaling bit translation and signaling state transition detection for direct inward dialing (DID) services on TR-303.
- The MSC is a simplex pack.

Power test units

The PTU has power converters to distribute +5V and -5V power to the CUs and 5V power to the MSC. Each PTU powers 12 CUs and one MSC. Positive and negative ringing inputs are looped through each PTU so that each PTU distributes ringing to the 12 CUs to which it provides power. The PTU can detect the loss of its ringing inputs. The PTU has relays and protectors for test access. It also has terminations and detectors for channel testing. Each PTU also supports one test access path (TAP). The PTU2 TAP (TAP-A) is required for special services testing and local test access, the PTU1 TAP (TAP-B) is required for POTS testing.

Channel units

SLC carrier (SPQ and AUA type) channel units (CUs) will be used. All intelligence about the CUs, their register formats and locations, the PTU message sets, etc., reside on the COMDAC. The set of SLC channel units supported is shown below:

- SPQ429 Quad P-phone CF
- SPQ442 Quad E SPOTS CS
- AUA41B 4W CF, inventory ready
- AUA45B ringing repeater (manual ring-down)
- AUA75 PLAR
- SPQ452 Dual Dataport OCU
- AUA200 SW 56 2W CU (Adtran)
- AUA232 RS-232(Adtran)
- SPQ444 Single 4W CS w/TDM
- SPQ454 Single 4W E&M Types I & II
- MCU-5205 DC alarm CU (Tollgrade)
- MCU-5405 DC bypass CU (Tollgrade).

5.2.1.2 Virtual remote terminals

The *AnyMedia* Access System can be configured to be logically divided into a number of separate virtual terminals that provide three types of voice frequency service node interfaces: TR-303, TR-08 and INA.

5.2.1.3 OAM&P interfaces

The *AnyMedia* Access System provides the following maintenance interfaces for operations, administration, maintenance and provisioning (OAM&P) for telephony services:

EIA-232D

- Local EIA-232D serial port on the CTU DTP100 in the *AnyMedia* Access System shelf to which a TL1 system interface (TL1SI or CIT) or a GSI can be connected. This interface is typically used during initial installation.

LAN, 10BaseT

- A local LAN interface on the *AnyMedia* Access System shelf provides access to an IEEE 802.3-compliant LAN through a 10BaseT connection. All communications through this interface will be over Transmission Control Protocol/Internet Protocol (TCP/IP), and is the way to the AEM.

ROC

- Remote operations channel (ROC): a remote LAN interface, which uses TCP/IP to communicate with the AEM. The OAM&P functionality is provided via a nailed-up DS0 link that is part of the DS1 (payload) connectivity to the *AnyMedia* Access System shelf. The DS0 link originates from a data communication network (DCN) that supports TCP/IP over an Ethernet LAN connection on the AEM side and does a translation to a wide area network (WAN) via multiple DS0s on the other.

5.2.1.4 External interfaces for circuit testing

The *AnyMedia* Access System provides three external interfaces for circuit testing:

- Local access for manual testing via jacks on the CTU DTP 100
- Connection to the TAP-B
- Remote test unit (RTU-2) via the tip/ring leads from two APs VF port circuits.

5.2.1.5 Synchronization interfaces

The *AnyMedia* Access System supports four timing modes which can be provisioned by the AEM:

- External DS1
- External composite office clock
- Free running mode
- Loop timed mode.

The provisioning options are described in Chapter 5.5.6.3, page 5-128.

5.2.1.6 Plug & play capabilities

Inventory data

The packs associated with the *AnyMedia* Access System have the capability to self-identify themselves with inventory data. This capability is very useful during the execution of provisioning and maintenance procedures.

For example, upon insertion of the new pack in the *AnyMedia* Access System shelf, the inventory data of the new pack, as well as its serial number, slot and pack entity, will be reported to the AEM and/or GSI interface. The removal of any pack unit will be announced also.

5.2.1.7 Equipment configuration-related tasks

The network element (NE) equipment configuration facilities provided by the AEM cover the operations that control and provision the NE, including the following tasks:

- **Configuration-specific equipment data, which involves:**
  - NE creation and deletion
  - Pack management
    - COMDAC management
    - IO_DS1s management - physical feeder management
    - CTU management
    - AFM management
    - AP management
  - Protection management
  - Slot alarming configuration
  - Date & time management
  - NE security configuration
  - Timing synchronization provisioning
- **Maintaining a local copy of the NE inventory, which includes:**
  - Initializing the local copy when an NE is added to the AEM.
  - Maintaining the local copy of equipment changes.
  - Synchronizing the local copy with the equipment data maintained by the NE, and reporting differences.
- **Inventory management** - system activity of collecting, updating, and reporting data on *AnyMedia* Access System equipment and system status, including providing users with access to the entire equipment information, whether locally maintained or not.
- **NE memory administration** - this means the management of the nonvolatile data storage (NVDS) of the *AnyMedia* Access System for backup and restore
- **NE software administration** - this involves tasks to manage the nonvolatile program storage (NVPS) of the *AnyMedia* Access System for software download, copying the NVPS between controller packs, etc.
- **MDS2/MDS2B management** - which, in this release, involves:
  - MDS2/MDS2B shelf slots alarming configuration

- Retrieve and maintain MDS2/MDS2B inventory information.

For more information please refer to the network element documentation.

5.2.2 Network element releases R1.2.2 and R1.7.0

AnyMedia Access System R1.7.0 adds a set of new features which have to be supported by the AEM, i.e.

- New APs and CUs
- DS1 regeneration (*AnyMedia* R1.2.2 only)
- Pack provisioning (*AnyMedia* R1.2.1 and all subsequent releases)
- Subshelves management: integrated access terminals (IATs) (*AnyMedia* R1.7.0 only)

The following sections provide some details on these features. For more details please refer to the related network element documentation.

5.2.2.1 DS1 regeneration (*AnyMedia* R1.2.2 only)

This feature controls the DSX-1 regeneration feature for an IO_DS1 pack. When this feature is activated, the designated pack provides two regenerator terminations. When it is deactivated, both regenerator terminations are disabled.

5.2.2.2 Pack provisioning

The *AnyMedia* Access System has the ability to specify any system slot as an equipment required or non-required slot. The purpose of this is to give the craft personnel the ability to specify on an individual shelf slot basis that the NE reports an alarm if a pack is removed from that slot.

5.2.2.3 Subshelves management - Integrated access terminal (IAT) (*AnyMedia* R1.7.0 only)

Overview

The integrated access terminal server (IATS) feature supports DS1-fed IATs hosted by IATS APs in the RT. These terminals are fed by one or more (in some cases, up to eight) DS1 feeders, and provide up to 24 equivalent DS0 services (switched or non-switched voice or data) per feeder DS1.

Up to two DS1 facilities

The IATS AP hosts up to two DS1 facilities using the signalling and facility data link (FDL) services provided by the extended superframe (ESF) DS1 format. The DS1 facilities connect to IATs via existing transmission infrastructure or via lines on a transmission network with DS1 add/drop capability.

Supported services

POTS, switched and non-switched voice services, and data services are supported by the IATS. Timeslots supporting voice telephony services use robbed bit signalling between the *AnyMedia* host and the IAT; data services are supported on 64Kb clear-signal timeslots (NxDS0).

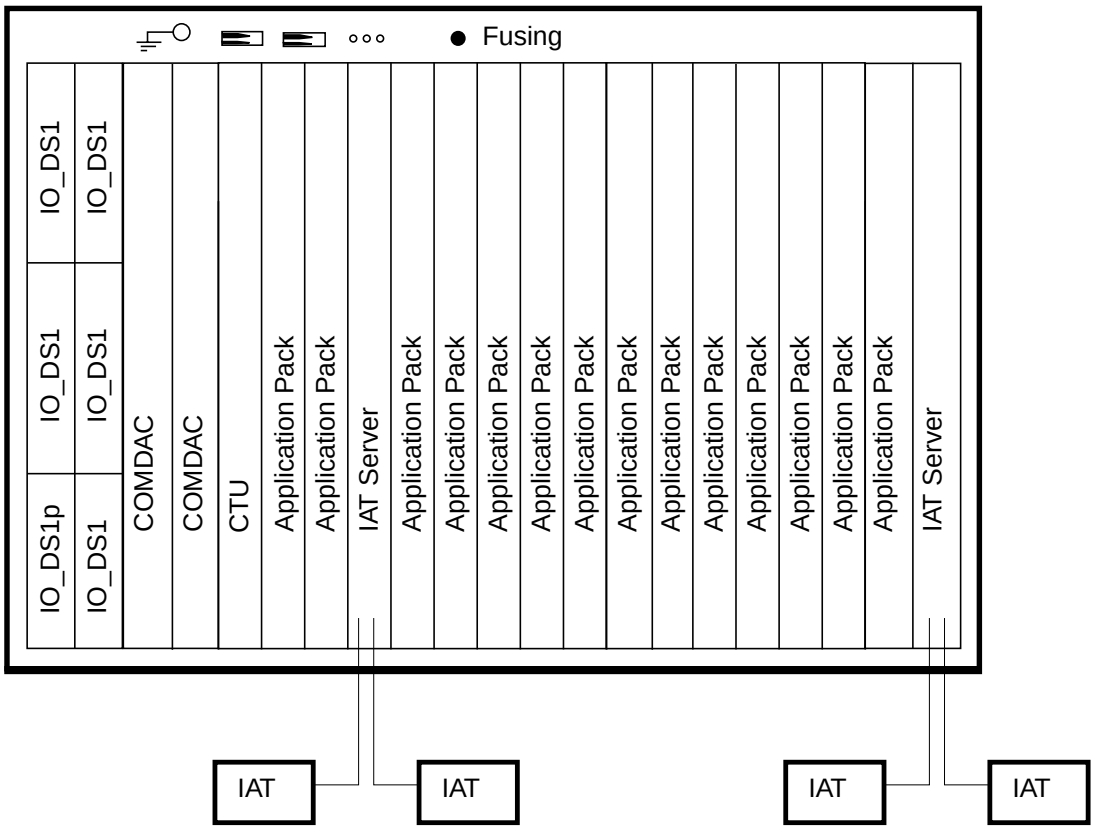


Figure 5-4 Examples of IAT subshelves

5.2.2.3.1 IAT provisioning model

This model contains the following components:

- Server pack provisioning

  The server pack provisioning is equal to the AP provisioning in the mainshelf.

- Subshelf provisioning

  A subshelf must be provisioned to define the type of the subshelf. This type also defines the used controller pack in the subshelf.

  After provisioning of the subshelf its supplied slots are automatically created in the system. These slots include the controller pack slot(s) and AP slot(s) both identified by the subshelf slot AID. The subshelves defined in this release are IAT01 and IAT02

- Subshelf controller pack provisioning

  The controller pack of a subshelf needs not to be provisioned manually as this is automatically done with the subshelf provisioning.

  Drops at subscriber interface APs are automatically created. Also one (or more) subshelf feeder ports dependent on the controller pack type are created in the system.

- Cross-connect mainshelf to subshelf

  The bearer channel bandwidth available at the subshelf depends, beside the capacity limits of the server pack and subshelf controller pack, on the number of links to the subshelf. The links between mainshelf and subshelf are provisioned with a cross-connection command which connects a mainshelf server port with a subshelf feeder port.

- Subshelf AP and subscriber provisioning

  The provisioning model of APs and subscribers in the subshelf is according to the existing provisioning model in the mainshelf except the newly introduced subshelf physical entity AIDs for slots and drops.

5.2.3 Broadband applications

This section gives an overview of the *AnyMedia* Access System broadband applications.

5.2.3.1 Data system description

Overview

The *AnyMedia* Access System provides data services to subscribers, using asynchronous transfer mode (ATM) cell transfer and asymmetrical digital subscriber line (ADSL) interface technology.

The *AnyMedia* Mainshelf provides end-to-end ATM cell transfer between customer premise equipment (ADSL modems) and network ATM switches. A mixed telephony/data mainshelf is shown in Figure 5-1, page 5-3. This configuration allows subscriber access to Internet service providers (ISP), remote LAN applications or any other related ATM services. ATM connections are established using permanent virtual channels (PVC).

Full-rate ADSL interface

The full-rate ADSL interface is a twisted 2-wire subscriber interface according to ANSI T1.413 and ITU-T G.992.1. It provides voice and data transmission using discrete multitone (DMT) technology. The connection can carry ADSL traffic as well as the POTS signal.

ADSL-lite interface

The ADSL-lite interface is a twisted 2-wire subscriber interface according to ITU-T G.992.2. It provides voice and data transmission using DMT technology. The connection can carry ADSL traffic as well as the POTS signal.

User interfaces

ADSL customer premise equipment is provided by an outside vendor for the *AnyMedia* Access System. The following end-user interfaces are available:

- 10BaseT/Ethernet for LAN interface applications (single or multiple users)
- Universal serial bus 5 (USB)
- PC network interface card (NIC).

The ADSL transmission is based on ANSI T1.413, Issue 2. In later releases, the system supports ADSL transmission based on ADSL-lite.

ATM traffic

The AFM pack (AFMDS3) interfaces up to x ADSL APs which may be installed in the *AnyMedia* mainshelf (x is 15 for a FAST shelf and 19 for a BAIU shelf). ATM traffic multiplexed to and from the ADSL APs is interfaced to the ATM network via an DS3 link. The DS3 link can connect the ATM switch directly to the transmission network.

5.2.3.2 Network DS3 interfaces

DS3 connections

The AFM DS3 feeder interface on the AFM has the following connections:

- Two DS3 ports
  - — Port 1 is used to interface toward the ATM network
  - — Port 2 is used to connect to any other *AnyMedia* Mainshelf that may be daisy-chained.

- Each DS3 has a 44.736-Mbps transmission rate and carries ATM payload cells
- The network DS3 may terminate directly at an DS3 interface of an ATM network node or may be transported over a synchronous optical network transmission system.
- The network DS3 provides a user network interface (UNI 3.1) cell format toward the network, as defined in the ATM Forum.

5.2.3.3 DS3 framing and synchronization

For DS3 framing direct cell mapping or PLCP is used. The AFM transmit clock is provisionable to be free running. The status of the DS3 ports is provided by LEDs on the AFM as well as by the AEM/GSI display.

5.2.3.4 Broadband synchronization and timing

Feeder timing

The timing source used by the AFM is not provisionable. The choices are as follows:

- Loop-timed from the input of DS3-1 (default value)
- Free-running.

Loop-timed

When the timing source is set to loop-timed, the AFM recovers the timing from the DS3 input that connects toward the ATM network (DS3-1). It distributes the recovered timing to the DS3-2 (downstream) interface and also to the output of DS3-1. The AFM recovers and distributes timing in this fashion regardless of where it is in a daisy-chain, or if it is operating alone. Therefore, the AFM recovers timing from DS3-1 regardless of whether DS3-1 is connected to the ATM transport network or to DS3-2 of another AFM.

Free-running

When the timing source is set to free-running, all DS3 timing is derived from an internal crystal oscillator with an accuracy of ±20 parts per million (ppm).

DS3-1 failure handling

If the DS3-1 signal fails, all DS3 timing is derived from same timing source used when the AFM is provisioned for free-running. When the DS3-1 failure clears, the timing source automatically changes back to loop-timed.

When the timing source is set to free-running, all DS3 timing is derived from the internal oscillator regardless of the health of the DS3-1 signal.

ADSL timing

Timing for each ADSL interface is derived from an internal crystal oscillator in the ADSL AP. This timing reference is used regardless of the status of the DS3 signal from the network.

5.2.4 AEM R1.7 new equipment configuration features

5.2.4.1 Telephony agent (narrowband)

The AEM R1.7 manages the following releases of the *AnyMedia* telephony agent of the 24-channel families:

- R1.2.1, R1.2.2 and R1.7.0.

The support of all these releases means the following set of new tasks in the equipment configuration area of the AEM:

- New APs and CUs
- DS1 regeneration (*AnyMedia* R1.2.2 only)
- Subshelves management: IATs (*AnyMedia* R1.7.0 only).

5.2.4.2 Data agent (broadband)

Unlike previous releases, the AEM R1.7 integrates the management of the data agent (R1.1.2 and R1.4) in the *AnyMedia* Access System.

The NE equipment configuration facilities provided by the AEM for the data agent include the following tasks:

- **Configuration-specific equipment data**:
  - Circuit pack management
    - AFM management
    - ADSLs management
  - Physical feeders management
  - Drops management
  - Date & Time management
- **Maintaining a local copy of configuration data in the AFM's NVDS:**
  - Synchronizing the local copy with the equipment data maintained by the AFM.
- **Inventory Management** - system activity of collecting, updating and reporting data on equipage and system status, including providing users with access to the entire equipment information, whether locally maintained or not.
- **AFM memory administration** - which means the management of the non-volatile data storage (NVDS) of the *AnyMedia* Access System including AFM for "Backup and Restore".
- **AFM software administration** - which involves tasks to manage the non-volatile program storage (NVPS) of the *AnyMedia* Access System including AFM for software download, software validation and activation, etc.

- **Subshelves management** - for subshelf creation, subshelf edition with cross-connection, and subshelf deletion.
- **Profile management -** for creating, deleting, or applying threshold and transmission profiles. Edit profile variables using a previously defined template.

5.2.4.3 Configuration of combined tasks

The integrated management of both agents, telephony and data, requires not only the equipment configuration features described previously for each agent, but also a unique view of some areas, for example subshelf management, pack provisioning, etc.

5.3 Initial windows

This major application provides the user with the facilities needed to fully configure *AnyMedia* network elements (both equipment and services).

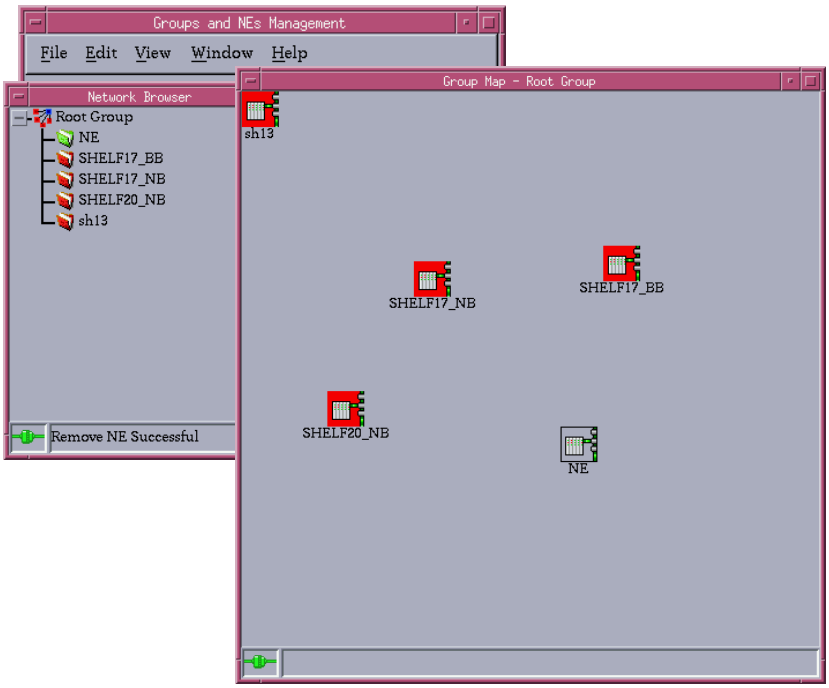


Figure 5-5 Groups and NEs Management window

The initial window consists of three windows:

- At the top, the **menu bar** (cf. Chapter 5.3.1, page 5-16) and the **tool bar** (cf. Chapter 5.3.2, page 5-17).
- On the left-hand side, the **Network Browser** (cf. Chapter 5.3.2.1, page 5-17).
- On the right-hand side, the **Background Map** window shows a background map of a selected NE group (cf. Chapter 5.3.3, page 5-18).

Depending on previous actions the following frames are additionally available:

- On the right-hand side, a common area is used for the display of the information requested through the menu bar, cursor menu or tool bar (if present).
- A **Network Element Browser** (cf. Chapter 5.3.2.2, page 5-18) shows all the components of the NE which has been selected via the **Network Browser**.

- A **status bar** is incorporated at the bottom of every single screen except of Network Browser and menu bar (cf. Chapter 5.3.4, page 5-19).
- The **cursor menu** will pop up at the cursor position when the right mouse button is pressed (cf. Chapter 5.3.5, page 5-20).

5.3.1 Menu bar

The menu bar entries are enabled/disabled depending on the object selected in one of the browser list (NE Browser or Network Browser). The following table describes the menu bar's main entries and subsequent submenus. The right column identifies the item that needs to be selected to have this menu option available.

Menu entries	Enable/Disable
File -> New	Any item in Network Browser (Group or NE)
File -> Remove	Any item in Network Browser (Group or NE)
File -> Print -> Print window	Always
File -> Print -> Print table	Always
File -> Print -> Preview	Always
File -> Exit	Always
Edit -> Cut	Text editing field
Edit -> Copy	Text editing field
Edit -> Paste	Text editing field
Edit -> Clear	Text editing field
View -> Object...	Always
View -> Toolbar	Always
View -> Reload	Always NOTE: This operation is not supported for the Network Browser. The menu appears only when no other Groups & NEs Management window is open.
Window -> Window 1	
Window -> Window 2	
Help -> Contents...	Always (displays the help index for navigation through the EM help information)
Help -> On Window...	Always (case-sensitive online help)

Menu entries	Enable/Disable
Help -> About...	Always

The options hidden under the menu name in the menu bar may also be executed via the keyboard. This can be done using various methods.

There are two ways of opening a menu using the keyboard:

- By simultaneously pressing the ***Alt*** key and the underlined character in the menu name (e.g. ***Alt-F*** for ***File***).

  Then select the desired option by typing in the letter underlined in this option. The menu will close and the related function is executed.
  Example: To execute the ***About...*** option under ***Help*** menu (see table above) press ***Alt-H*** followed by ***A***.

- By using short-cuts to cut, to copy or to paste text strings. The short-cuts are the usual ones in the used platform (Solaris or Windows).

5.3.2 Tool bar

The tool bar contains icons that provide quick access to the most commonly used actions: New (create a new object: group, NE, pack), Open (edit an existing object: group, NE, pack), Remove (delete selected object: group, NE), Print, Help, Exit, Reload, Show Parent Group. Tooltips are also provided for these action icons.

5.3.2.1 Network browser

The **Network Browser** displays all groups and NEs created in the AEM in a tree-like structure. The first level in the tree is the root group.

Alarm serverity

The icons change their color to reflect the highest severity alarm (critical, major, minor, indeterminate or warning alarms). The highest severity alarm of a group is the highest severity alarm of all the alarms of its child groups and NEs. The alarm status color is in accordance with the alarm viewer color set (red for critical and major; yellow for minor; white for indeterminate and warning).

Expand display

Any level of the Network Browser (e.g Group_1) can be expanded to its components (e.g. groups and NEs) by clicking on the "+" symbol related to the object to be expanded (only groups can be expanded). Any expanded object can be collapsed by clicking on the "-" symbol related to it. The branch can also be expanded by double-clicking on a group.

NOTE:
The display is not automatically refreshed. The changes are only visible after re-expanding the branch (clicking on the "+" sign).

Move icons It is possible to move an NE or a group from an origin group to a target group by "drag and drop". Once an NE is dropped the mouse pointer converts to a clock until the action has finished. This clock pointer is shown over the browsers and over the background map window (group map).

The old parent group and the new parent group update their group status to the new group status (high severity alarm), this group status depends on the domain to which the operator belongs.

New background group Clicking or double-clicking on a group icon launches a new background map of the selected group.

New Network Element Browser Clicking or double-clicking on an NE icon launches a new Network Element Browser displaying the selected NE.

5.3.2.2 Network Element Browser

The **Network Element Browser** displays all the components of the previously selected NE (through the Network Browser or by double-clicking on NE icons within the background map): shelves and packs.

The Network Element Browser shows the slot_Id if the slot is not equipped. If the slot is equipped, the apparatus code of the inserted pack is shown.

5.3.3 Background Map

In the Group Map a background map of a selected NE group is shown. By double-clicking on a group icon all components of this group will be displayed. The same result can be reached by double-clicking on the group name in the Network Browser.

By clicking on the "Show Parent Group" icon in the tool bar, the background map of the parent group (with all its components) will be displayed.

By double-clicking on an NE icon the Network Element Browser is displayed with the selected NE as root node.

Move icons It is possible to move an icon (group or NE) over the background map by "Drag and Drop" as well as moving icons between Network Browser and the background map.

Once an NE is dropped the mouse pointer converts to a clock until the action has finished. This clock pointer is shown over the browsers and over the background map window (group map).

The old parent group and the new parent group update their group status to the new group status (high severity alarm), this group status depends on the domain to which the operator belongs.

5.3.4 Status bar

Feedback from the NE is displayed on screen, as is progress information related to the commands issued by the AEM. This feedback is provided by the status bar incorporated at the bottom of screens which execute commands.

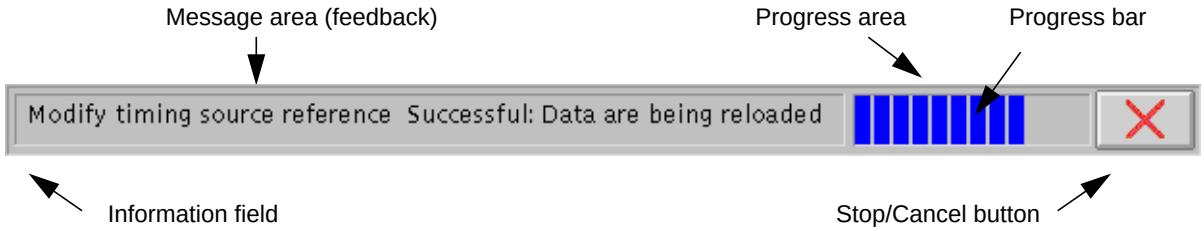
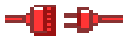


Figure 5-6 Status bar (example)

The status bar is composed of four sub-areas:

- **Information field**: Used to display monitoring information by means of two icons.


Information not updated

Information updated

- **Message area**: Used to display feedback. It indicates what is being done. The last feedback message sent by the NE is displayed until a new command is sent or the window is closed. There is a tooltip available to show the complete message if the message area is smaller than the message.
- **Progress area**: Informs the user there are jobs running.
- **Stop / Cancel button**: For commands: allows cancellation of commands. Note that Cancel does not imply undo.

If the user tries to close the window and the last command executed has not finished yet, they will be informed (*Warning* window) that there are still jobs running:

`You have running jobs. Do you want to continue?`

The user has to decide whether to continue or wait until the job is finished. Note that closing the window does not imply cancelling the action.

Additional messages

The following can be displayed in the message area:

- Feedback (see above)

- Error messages

  Any time a wrong data is entered in the GUI (out-of-range values, inappropriate value types, etc.), an error message indicates the nature of the error. The checking of wrong data is performed when the Apply or Ok button is clicked.

- Failed window opening
  - Failed window refresh.

For windows without status bar the error message will be shown by means of a warning window. This window will be automatically closed after a time (default 10 seconds) which is configurable.

If the error cannot be identified a general error message (recorded in a catalog) will be presented (e.g. "Last Operation or Data request could not execute").

5.3.5 Cursor menu

Menu at the cursor position

Some objects in windows have a menu associated with them. This menu will pop up at the cursor position when the right mouse button is pressed. The cursor must not, however, be positioned on a menu bar or a window frame. The cursor menu is not available in all dialogue boxes. The functions which can be executed using this cursor menu depend on the application of the respective dialogue box.

Select menu option

Proceed as follows to select a menu option from the cursor menu:

Step	Procedure
1.	Press and hold down the right mouse button.
2.	Drag the cursor onto the desired menu option.
3.	Release the right mouse button to execute the menu option, or if you do not wish to execute a menu option, move the cursor away from the menu and release the right mouse button.

5.3.5.1 Cursor menus entries

5.3.5.1.1 Network Browser

Selected icon on Network Browser	Cursor menu entries
Group	***New*** (*Groups & NEs* window) ***Edit*** (*Groups & NEs* window) ***Show Map*** (background map) ***Remove*** (groups) ***Alarm Monitoring*** (group-specific alarms)
NE	***Edit*** (*Groups & NEs* window) ***NE Management*** (*NE Management* window) ***Remove*** (NE) ***Open Network Element Browser*** ***Alarm Monitoring*** (NE-specific alarms) ***Log Viewer***

5.3.5.1.2 Network Element Browser

Selected icon on Network Element Browser	Cursor menu entries
NE	***Inventory*** ***Date & Time -> Telephony*** ***Date & Time -> Data*** ***Synchronization -> Telephony*** ***Synchronization -> Data*** ***Timing Source Control*** (only for telephony) ***Create Subshelf -> IAT*** (only NE R1.7.0) ***Alarms*** ***Logs*** ***List -> ATM Cross-Connections*** ***List -> VRT/VB*** ***List -> Physical DS1*** ***List -> Logical DS0*** ***List -> Data Test*** ***Backups -> Telephony*** ***Backups -> Data*** ***Restore -> Telephony*** ***Restore -> Data*** ***Software Download -> Telephony*** ***Software Download -> Data***

Selected icon on Network Element Browser	Cursor menu entries
NE (continued)	***Program Copy -> Telephony*** ***Program Copy -> Data*** ***Cut-Through -> Telephony*** ***Profiles -> ADSL Transmission*** ***Profiles -> ADSL PM Threshold*** ***Performance -> ATM Traffic*** ***Performance -> Feeder*** ***Performance -> ADSL*** ***AFM Feeder PM Threshold (Data)***
Main Shelf	***View*** ***Protection***
Subshelves	***View*** ***Edit***
AP	***View***

5.4 Groups and NEs management

The groups and NE management (map handling) is performed by the following windows:

- Network Browser
- NE Browser
- Group Map.

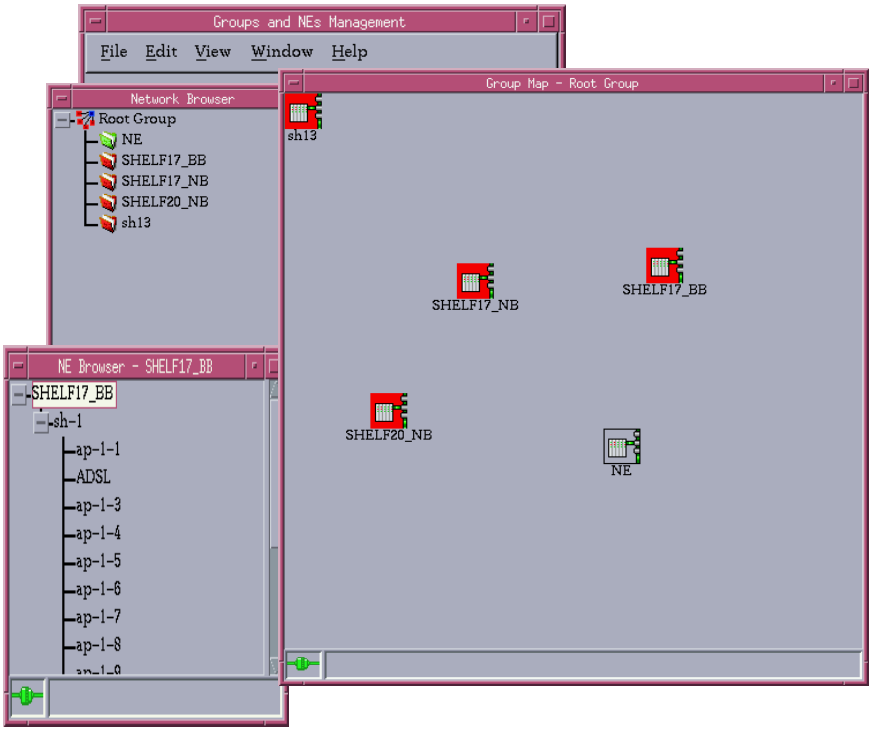


Figure 5-7 Groups and NEs Management windows

5.4.1 Groups management

Overview

Groups management consists of the addition of a new group to the set of groups that can be managed by the AEM as well as the deletion and edition of their attributes. It also involves the movement of a group from a old parent group to a new parent group and the information of the group status parameter.

NE groups

Due to the increase of the number of NEs to be managed by the AEM, they are displayed in a layered way, displaying sets of NEs instead of the whole set of NEs. These groups can contain NEs and/or other groups. Groups and NEs are distributed in a tree hierarchy with the root group as the starting point of the tree.

The root group has no group icon nor group coordinates as it is never shown from an upper layer. Instead, it has a background map to display the icons of the items of the first level.

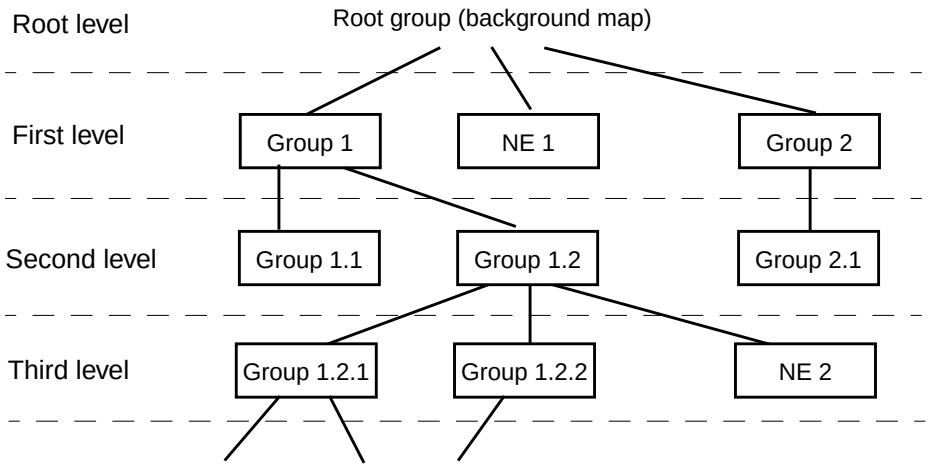


Figure 5-8 Tree hierarchy of groups and NEs

View levels

The root group is a special group that is created at the first start-up and can never be deleted. It is the only item in the root level of Figure 5-8. From this level, only the items of the first level are visible (for example: Group 1, Group 2 and NE1 are directly reachable from the root level).

Allocation to background maps

To facilitate the visualization of the child items of a group, a background map can be allocated to each group to depict the group's child items on it. To implement this, each group must have the following parameters:

- Group name: This identifier must be unique within the group level (groups with the same parent group).
- Group icon: to graphically identify the group when displaying the items of the group's parent group.
- Background map: map on which the group's child items are displayed.
- Group coordinates: to specify the position of the group icon on the background map of the group's parent group.

Allowed names

Two different groups can have the same group name except when their parent groups are the same. It is therefore possible to have two groups named "Group C" with "Group A" and "Group B" as their parent groups respectively (see Figure 5-9, page 5-25).

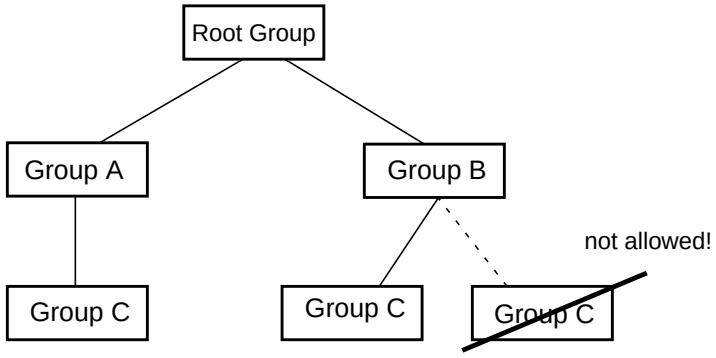


Figure 5-9 Group names allowed

Group identifier

To uniquely identify a group a concatenation of all the group names from the root group to the group being identified is necessary (e.g. the identifier of Group 1.2.1 in the Figure 5-8, page 5-24 is: *Root group - Group 1 - Group 1.2 - Group 1.2.1*).

However, when logging data related to a group, that identifier will be truncated due to log requirements. Only the name of the group and the name of the parent group will be logged as the identifier of a group (e.g. the log identifier of Group 1.2.1 in the Figure 5-8, page 5-24 is: *Group 1.2 - Group 1.2.1*).

Alarm handling

The only items in the tree hierarchy allowed to report alarms are the NEs. Groups do not generate alarms by themselves, but they show the highest severity of the alarms reported by the contained NEs included in the operator domains. This severity is called group status.

Example

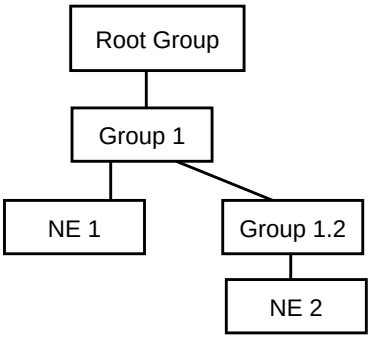


Figure 5-10 Alarm handling (example)

Reported group status

For instance, supposed that NE1 have reported a *critical* alarm and NE 2 have reported a *minor* alarm. Group 1.2 will report a *minor* alarm in its group status because that is the highest severity of the alarms it contains. Nevertheless, group 1 will report a *critical* alarm in its group status because it contains two NEs: NE 2 with *minor* as its highest severity alarm and NE 1 with *critical* as its highest sever-

ity alarm. If there are no more alarms in the system, the root group will inform of a *critical* alarm.

Each time a new alarm is reported by a NE or an existing alarm changes its state, the following process must be followed:

- calculate the new group status of the parent group.
- If this group status has changed, calculate the group status of the parent group of the parent group (the grandparent group) and so on.

The process will finish when the group status of a group remains unchanged or the root group is reached.

Moving groups

A group can be moved between parent groups. All the items included in the group are also moved. There are two constraints to this feature:

- The new parent group cannot be a descendant of the group to be moved to avoid inconsistencies.
- The group name of the group being moved is not allowed to exist in the new parent group.

After having moved a group, both old and new parent groups check if their group status have changed. If a group status has changed, the system will rebuild the group status for both parent groups and for the groups above them in the tree hierarchy of groups.

5.4.2 NEs management

Group identifier

NEs management involves the addition of a new NE to the set of NEs that can be managed by the AEM as well as the deletion and edition of their attributes. It also involves the movement of an NE from an old group to a new group.

The user can create NEs within the groups. The NEs are also represented by an icon and coordinates to situate it on the background map of the parent group. Each NE must therefore have the following parameters when being created:

- NE name: This identifier must be unique in the whole tree.
- NE icon: to graphically identify the NE when displaying the items of its parent group.
- Domains
- NE coordinates: to specify the position of the NE icon on the background map of its parent group.

The NE shows the highest severity of all the alarms it reports.

The NEs can be edited, deleted and moved. When an NE is moved from an old parent group to a new parent group, the group status of both parent groups must be updated.

5.4.3 Groups and NEs window

This window is used to create, edit and delete NEs and Groups. The window is subdivided in two panes: Groups and NEs.

NOTE:
The windows shown in this chapter are merely meant as an example. The contents (text) within a window, as well as the window itself, may slightly differ from the window as shown on your system.

5.4.3.1 Groups window

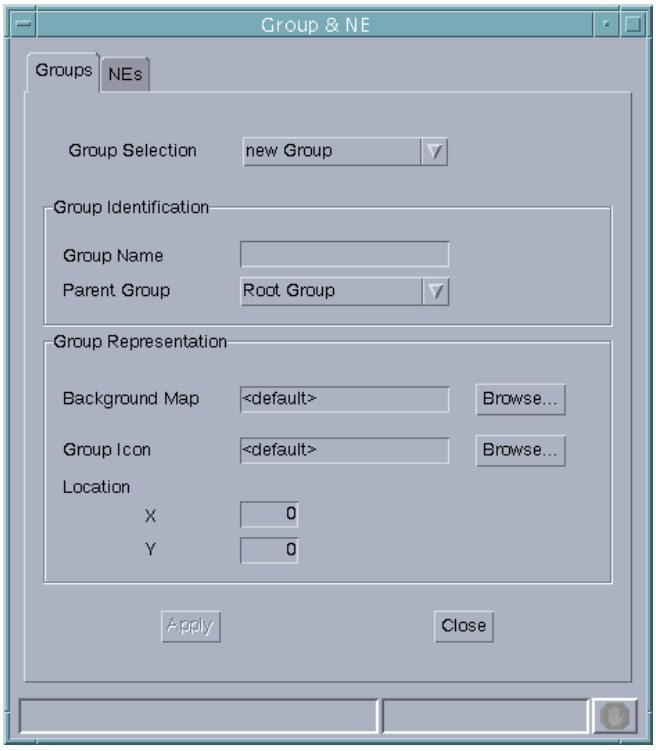


Figure 5-11 Groups & NEs window (tab Groups)

The following table shows the view/edit options of the group parameters:

Parameters/ Buttons	Description
Group Name Selection	This option menu shows all defined group names belonging to the user domain. The first option is NEW. If NEW is selected all parameters within the fields **Group Identification** and **Group Representation** are deleted for a new definition.
Group Identification	**Group Name**: This text field shows the selected group name or is empty in case of NEW is selected. **Parent Group**: This option menu shows all defined group names of the system. One of them must be selected to enable the creation of a subordinate group.
Group Representation	**Background Map**: This text field is used to enter the path to the map related to the group. ***Browse...***: This button is used to open the *File Browser* window in order to select the background map. **Group Icon**: This text field is used to enter the path to the icon related to the group. ***Browse...***: This button is used to open the *File Browser* window in order to select the icon. **X-Coord**: This text field is used to set the x coordinate to locate the icon on the background map of the parent group. **Y-Coord**: This text field is used to set the y coordinate to locate the icon on the background map of the parent group.
Apply	This button is used to confirm the changes. The button is available only if the **Group Name** is present.

5.4.3.2 Create/modify groups

Complete the following procedure to create/modify a group:

Step	Procedure
1.	Select the group in the Network Browser or in the background map and ***New*** or ***Edit*** via the cursor menu or select ***File -> New*** or ***View -> Object*** via the menu bar or click on the open icon in the tool bar. The *Groups & NEs* window (tab Groups) pops up (cf. Figure 5.4.3, page 5-27).

If you want to ...	then ...
edit the parameters of an existing group	use the option menus **Group Name Selection** and **Group Identification** to select the desired group, edit the parameters in the field **Group Representation** and press ***Apply***.
create a new group	use the option menu **Group Name Selection** to select the NEW option, enter an appropriate name in the text field **Group Name**, use the option menu **Parent Group** to select the desired parent group, define the parameters in the field **Group Representation** and press ***Apply***.

2.	Click on ***Close*** to exit the window.

5.4.3.3 Delete a group

Procedure Complete the following procedure to create/modify a group:

Step	Procedure
1.	Select the group in the Network Browser or on the background map and click on ***Remove*** in the cursor menu or select ***File -> Remove*** via the menu bar or click on the remove icon in the tool bar. A *Warning* window pops up displaying the following message: **`You are about to delete Group Name. Do you want to continue?`**
2.	Enter ***y*** and press ***Return*** to confirm.

5.4.3.4 NEs window

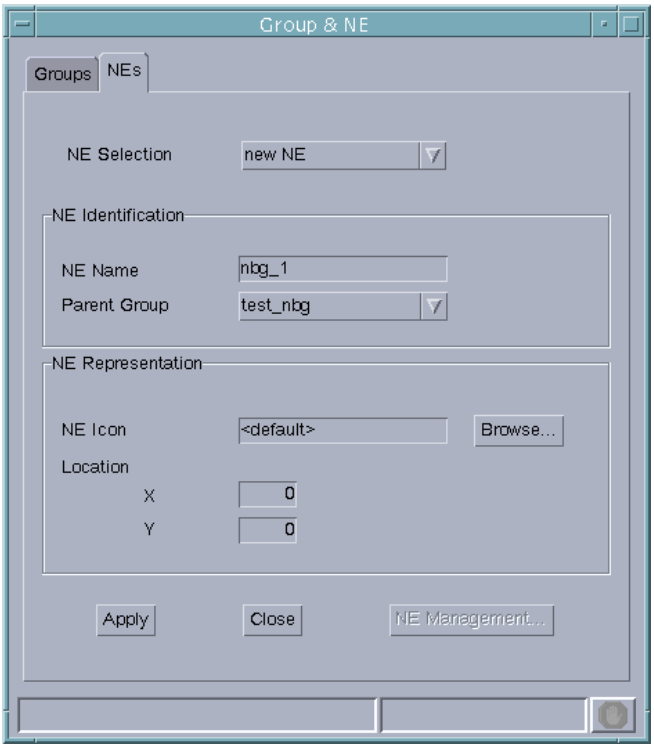


Figure 5-12 Groups & NEs window (tab NEs)

The following table shows the view/edit options of the NE parameters:

Parameters/ Buttons	Description
NE Name Selection	This option menu shows all defined NEs belonging to the user domain. The first option is NEW. If NEW is selected all parameters within the fields **NE Identification** and **NE Representation** are deleted for a new definition.
NE Identification	**NE Name**: This text field shows the selected NE name or is empty if NEW is selected. **Parent Group**: This option menu shows all defined group names of the system. One of them must be selected to enable the creation of a subordinate group or NE.

Parameters/ Buttons	Description
NE Representation	**NE Icon**: This text field is used to enter the path to the icon related to the NE. ***Browse...***: This button is used to open the *File Browser* window in order to select the icon. **X-Coord**: This text field is used to set the x coordinate to locate the icon on the background map of the parent group. **Y-Coord**: This text field is used to set the y coordinate to locate the icon on the background map of the parent group.
Command buttons	***Apply***: This button provides access to the *Domain Selection* window (cf. Figure 5-14, page 5-36) to include the NE in one or several domains. The button is available only if the NE name is present. ***NE Management...***: This button provides access to the *NE Management* window (cf. Figure 5-15, page 5-37) to configure the selected NE.

5.4.3.5 Create/modify NEs

Complete the following procedure to create/modify an NE:

Step	Procedure

1. Select the ***NE*** in the Network Browser or on the background map and ***New*** or ***Edit*** via the cursor menu
or select ***File -> New*** or ***View -> Object*** via the menu bar
or click on the Open icon in the tool bar.
The *Groups & NEs* window (tab NEs) pops up (cf. Figure 5-12, page 5-30).

If you want to ...	then ...
edit the parameters of an existing NE	use the option menus **NE Name Selection** and **NE Identification** to select the desired NE, edit the parameters in the field **NE Representation** and press ***Apply***.
create a new NE	use the option menu **NE Selection** to select the NEW option, enter an appropriate name in the text field **NE Name**, use the option menu **Parent Group** to select the desired parent group, define the parameters in the field **NE Representation** and press ***Apply***. The *Domain Selection* window pops up (cf. Figure 5-14, page 5-36).
configure the NE	click on ***NE Management...***. The *NE Management* window pops up (cf. Figure 5-15, page 5-37).

2. Click on ***Close*** to exit the window.

5.4.3.6 Remove an NE

Select the ***NE*** in the Network Browser or on the background map and click on ***Remove*** in the cursor menu
or select ***File -> Remove*** via the menu bar
or click on the remove icon in the tool bar.

5.5 Equipment configuration

Overview

Configuration of specific equipment data is the process of preparing the AEM for control of the *AnyMedia* Access System by configuring and setting the required parameters.

First the AEM must have some knowledge of the equipment. The AEM gets this data during the NE creation process, which is usually followed by pack configuration.
Then, during NE management, some other tasks regarding equipment configuration can be performed by the AEM, e.g. date & time management, timing synchronization management, protection management, etc.
Finally, if the NE is no longer managed by the AEM, it is deleted from the AEM database.

Provisioning model

The *AnyMedia* Access System uses a provisioning model to provide service, which means that the circuit must be prepared to provide service by defining its function and setting of required options. For example, for creation of a service for a subscriber line it is first necessary to provision the corresponding application pack (AP).

AP provisioning set up a desired pack type in a desired slot. To be fully functional an AP must not only be inserted but also provisioned, and the provisioned pack type must fit the actual type of the inserted pack. A pack can be provisioned and configured by the AEM even when the slot is still empty.

The description of equipment configuration is divided in three main sections:

- Add a network element (cf. Chapter 5.5.1, page 5-35)
- Edit/view configuration data (cf. Chapter 5.5.5, page 5-54)
- Delete the network element (cf. Chapter 5.5.18, page 5-173).

Screen navigation

Figure 5-13, page 5-34 shows an overview of the screen navigation for equipment configuration. In this figure is assumed that the NE is already connected (cf. Chapter 5.5.1, page 5-35).

Examples

To open the *COMDAC Shelf Protection* window proceed as follows:

- Select ***NE -> Main Shelf -> COMDAC*** via the Network Element Browser and select ***Protection*** via the cursor menu or
- Select ***NE -> Main Shelf -> COMDAC*** via the Network Element Browser, open the *COMDAC* window by means of the menu bar (***View -> Object***) or be means of the tool bar (open icon)
  and click on the ***COMDAC Protection...*** button in the COMDAC window.

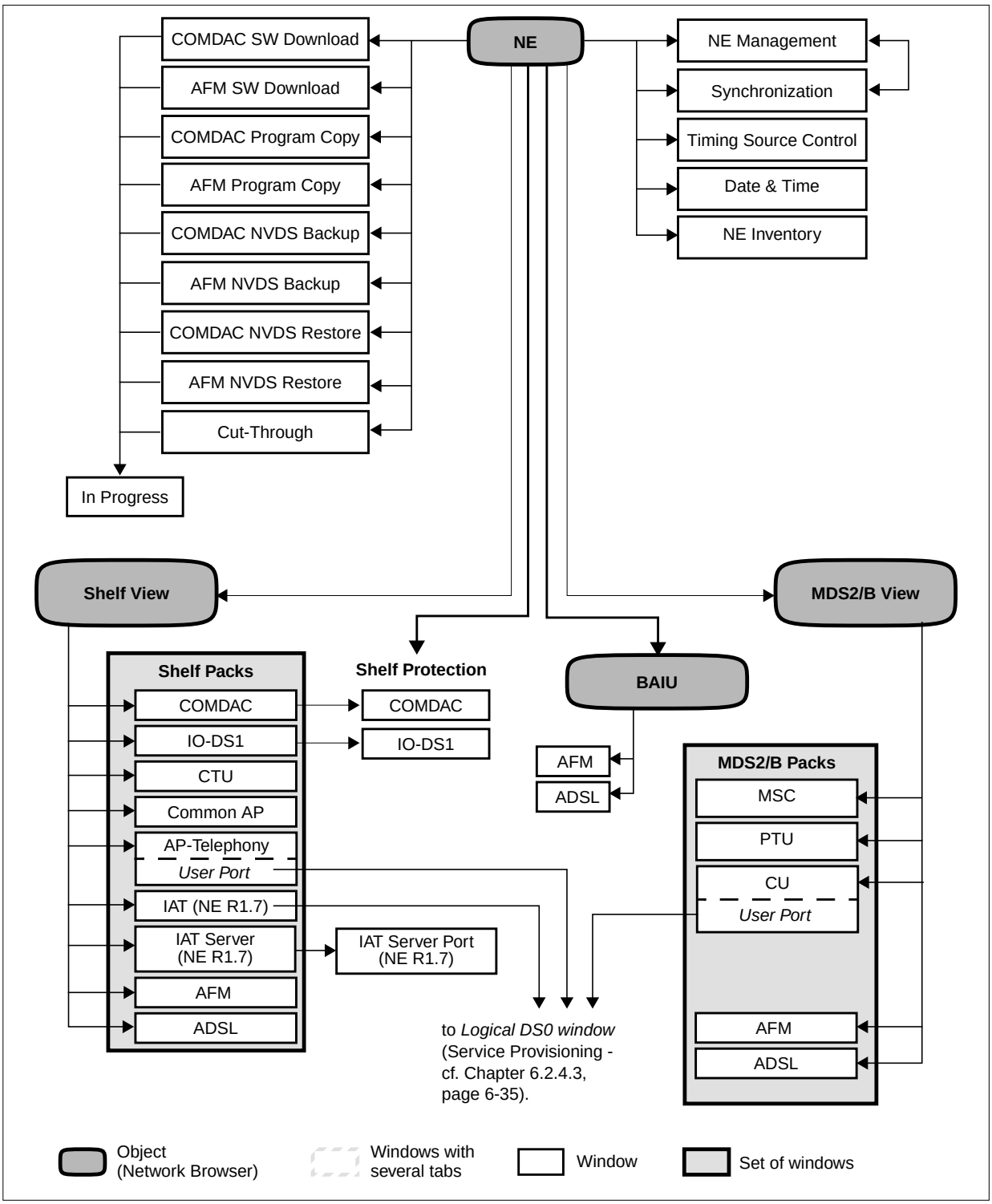


Figure 5-13 Screen navigation for equipment configuration

5.5.1 Add a network element

The following steps are necessary to add an NE:

- Create NE
- Assign Domain.

To add an NE the following requirements must be fulfilled:

- The PC-based GSI is used to set the NE to a state where NVDS (non-volatile data storage) is populated with the minimum values (i.e. target id, IP address, user id).
- All these parameters are assumed to be known by the user.
- The data communication network (DCN) link with the NEs is available (cf. Appendix A).
- Domains are already created (cf. Chapter 4.3.1).

NOTE:
The windows shown in this chapter are merely meant as an example. The contents (text) within a window, as well as the window itself, may slightly differ from the window as shown on your system.

Procedure

Complete the following procedure to add an NE.

Step	Procedure
1.	Select the NE in the Network Browser or on the background map and ***New*** or ***Edit*** via the cursor menu or select ***File -> New*** or ***View -> Object*** via the menu bar or click on the open icon in the tool bar. The *Groups & NEs* window (tab NEs) pops up (cf. Figure 5-11, page 5-27).
2.	Fill in all NE information for a new NE as described in Chapter 5.4.3.2, page 5-29.
3.	Press ***Apply*** to confirm. The *Domain Selection* window pops up.

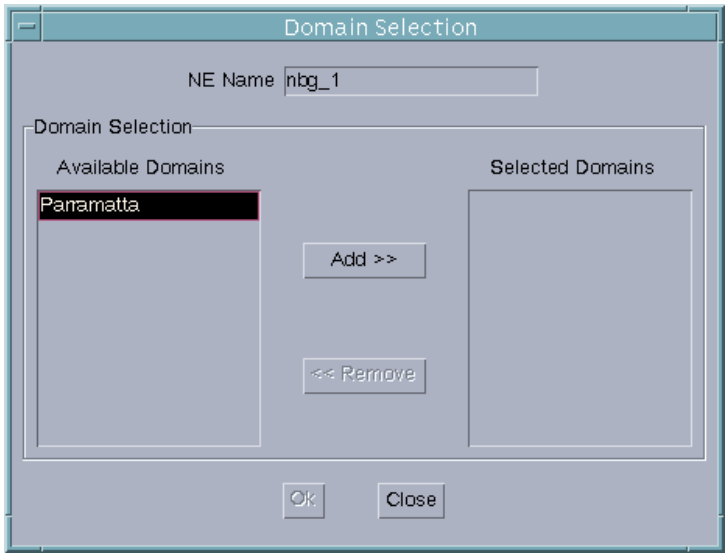


Figure 5-14 Domain Selection window

Assign domain

At creation time, the NE must be included in one or several domains (for domain creation see Chapter 4).

The *Domain Selection* window consists of two lists: **Available Domains** and **Selected Domains**. The window provides the facilities needed to select the domains from which the NE will be accessible.

4. Use the ***Add >>*** button to move the selected domain from the **Available Domains** list to the **Selected Domains** one. Use ***<< Remove*** to remove domains from the **Selected Domains** list.
(The ***Add >>*** button and the ***<< Remove*** button are available only after having selected a domain name from the corresponding list.)

5. Press ***OK*** to confirm. The NE is assigned to the selected domains and the *Domain Selection* window is closed.

NOTE:
If you decide to close this window (via ***Cancel*** or window controls), a *Warning* window pops up informing you of the possible rejection of the NE creation:

```
At least 1 domain must be selected and confirmed.
Otherwise the NE creation operation will be rejected.
Do you want to go back to Domain Selection?
```

If you select ***No***, the creation of the NE is rejected. Otherwise, the *Domain Selection* window is activated. The window remains on the screen until you make a decision.

The ***NE Management...*** button is now enabled.

6. Press the ***NE Management...*** button. The *NE Management* window pops up.

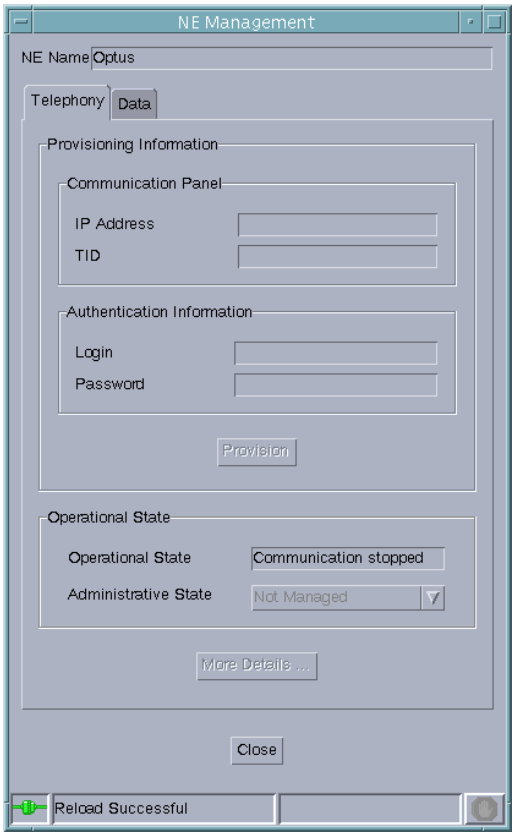


Figure 5-15 NE Management window (tab Telephony)

The following steps describe the procedure for the telephony agent. The procedure for data agents is similar. The corresponding window (*NE Management*, tab Data) is described in Chapter 5.5.3.3, page 5-44.

NE provisioning data

7. Enter the **IP Address** and **TID** (Target ID, the name of the NE to which the connection is addressed) of the new NE in the field **Communications Info**. IP Address format: xxx.xxx.xxx.xxx; where x is a numeric [0, 9]; the TID has a range from 1 to 20 characters.

NOTE:
Once the connection is established, these fields can not be edited unless the connection is interrupted.

8. Enter the **Login** and **Password** in the **Authentication Information** field.

NOTE:
Once the connection is established, these fields can not be edited unless the connection is interrupted.

The ***Provision*** button becomes available when the **Communications Info** and/or the **Authentication Information** fields have been changed.

9. Click on the ***Provision*** button.

   Once the NE is provisioned, the **Administrative State** becomes available.

10. Change the **Administrative State** to Managed.

    The AEM starts the connection and synchronization processes with the NB agent. The progress of these processes can be watched in the field **Operational State**.
    Possible values are: Communication Stopped, Communication Stopped (Releasing), Communication Trying, Communication Trying (Problem Detected), Communication Established, Communication Established (Synchronizing).

    When the **Administrative State** has been changed to Managed the ***More Details...*** button becomes available.

11. Click on ***More Details...*** to open the *Synchronization* window (cf. Chapter 5.5.6, page 5-122) in order to view or modify the synchronization data.

Edit and provisioning actions are only possible once the connection is established. Only in this case the NE can be displayed on the Browsers and the background map.

5.5.2 Connection states AEM - telephony agent

There are three AEM - telephony agent connection states:

- **NOT_CONNECTED**

  Initial connection state when there is no connection between AEM and the telephony agent and the AEM is in a "passive" state avoiding any possibility of connection establishment with the telephony agent.

- **TRYING**

  Initial connection state when the TL1 communication session between the AEM and the telephony agent is not available but the AEM is in an "active" state trying to open a connection with the telephony agent.

- **CONNECTED**

  The connection between the AEM and the telephony agent is available and the software version currently stored in the telephony agent is supported by the AEM. When the association process between the AEM and the data agent is completed, the telephony agent state changes to CONNECTED and remains like this until the TL1 communication session is closed on user request or the connection is lost/closed.

5.5.2.1 Changing connection states

The connection state changes can be initiated by the user via the GUI (cf. Chapter 5.5.1, page 5-35, section Add a network element) or they are initiated by the AEM.

Communication The AEM communicates with the telephony agent by using TL1 commands and file transfer protocol (FTP) over TCP/IP.

Not connected The user can initiate the connection establishment process with an telephony agent in connection state NOT_CONNECTED. After initiating this process the connection state changes to TRYING.

Trying When the connection state is TRYING, the AEM tries to establish a connection with the telephony agent. After the successful connection the AEM checks if the AEM supports the software version of the telephony agent. If the software version is supported the connection state becomes CONNECTED, if not it remains TRYING and the AEM continues its attempts to establish a connection. The user can cancel these attempts via the GUI, which will change the connection state to NOT_CONNECTED.

Connected The user can request to close a TL1 communication session with a telephony agent via the GUI. When the communication session is closed by the AEM, the connection state is changed to NOT_CONNECTED. When the connection state is CONNECTED and the connection is lost, the connection state becomes TRYING. If a TL1 communication session loss is detected and the TCP/IP connection is still established, the AEM closes the TCP/IP connection and the connection state also becomes TRYING.

5.5.2.2 Association maintenance

Association An association between the AEM and an telephony agent is established if the TCP/IP connection and the TL1 communication session is open. The connection state changes to CONNECTED.

Agent monitoring The AEM monitors the association state of the telephony agent by periodically sending messages to the telephony agent. If the AEM does not receive a response to a certain number of messages within a certain time, it assumes that the connection to the telephony agent is lost and tries to connect to the telephony agent again.

Default values for monitoring

By default these messages are sent by the AEM every five minutes. The response to a message must be received within four minutes and not more than two responses may be lost, otherwise the connection is closed by the AEM.

These values can be configured by the user via the system variables "NEM.association.heartBeatNumber" and "NEM.association.heartBeatTime" in the file $ANYMEDIAPATH/cfg/AnyMediaEM.cfg.

5.5.2.3 NE Management window (tab Telephony)

This window shows the provisioning information and allows the provisioning and deprovisioning of an NE (telephony agent).

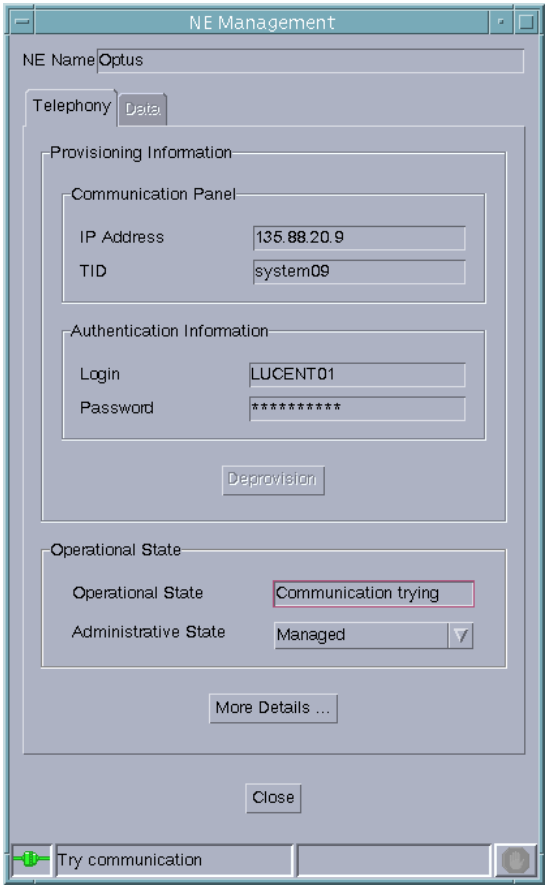


Figure 5-16 NE Management window (tab Telephony)

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Provisioning Information	Once the connection is established, the following fields cannot be edited unless the connection is interrupted (connection state = Not Managed). **Communications Info**: This field contains the editable text fields **IP Address** and **TID**. This information is mandatory to get a AEM-NE connection. **Authentication Information**: This field contains the text fields **Login** and **Password**. This information is also mandatory to get a AEM-NE connection. The ***Label*** button is used to provision/deprovision the NE. ***Provision***: If the NE is not provisioned or any value has been changed. Provisioning is enabled only if the administrative state is Not Managed (see below). ***Deprovision***: If the NE has been provisioned and no value has been changed.
Operational State	The option menu **Administrative State** shows the possible values: Managed, Not Managed. This option menu is disabled if the telephony agent is not provisioned. The text field **Operational State** shows the current state of the data agent. Possible values: Communication Stopped, Communication Stopped (Releasing), Communication Trying, Communication Trying (Problem Detected), Communication Established, Communication Established (Synchronizing).
More Details...	This button provides access to the *Synchronization Telephony* window (cf. Chapter 5.5.6.1.3, page 5-123). It is available only if the administrative state of the agent is Managed.

5.5.2.4 Modify NE Management data (telephony agent)

Procedure Complete the following procedure to manage an NE (telephony agent).

Step	Procedure

1. Select ***NE*** in the Network Browser or in the background map and ***NE Management*** via the cursor menu. The *NE Management* window pops up.

   This window can also be reached from the *Groups & NEs* window (tab NEs) by clicking on ***NE Management...*** (cf. Chapter 5.4.3, page 5-27).

If you want to ...	then ...
provision the NE	enter or change the values for **IP Address**, **TID**, **Login** or **Password** in the Provisioning Information field and press ***Provision***.
deprovision an provisioned NE	click on ***Deprovision*** in the Provisioning Information field.
change the administrative state	use the corresponding option menu in the Operational State field.
show/edit the synchronization data	click on ***More Details...***.
exit the window	click on ***Close***.

5.5.3 Communication states AEM - data agent

There are three general AEM - data agent communication states:

- **Communication Stopped**

  Initial communication state when there is no communication between AEM and the data agent.

- **Communication Trying**

  The AEM is in an "active" state trying to start the communication with the data agent.

- **Communication Established**

  The AEM and the data agent are able to communicate with each other.

The three described states can be divided in six AEM - data agent communication states as follows:

- **COMM_STOPPED**

  Initial connection state when there is no connection between AEM and the data agent and the AEM is in a "passive" state avoiding any possibility of communication establishment with the data agent.

- **COMM_TRYING**

  The AEM is in an "active" state trying to start a communication with the data agent by sending SNMP PDUs.

- **COMM_TRYING_PROBLEM_DETECTED**

  The AEM has detected a failure in the communication process.

- **COMM_ESTABLISHED**

  The AEM and the data agent are able to communicate with each other. The AEM is able to request data to the data agent and the data agent is able to respond to AEM queries and to send traps to the EM.

- **COMM_ESTABLISHED_SYNCHRONIZING**

  The EM is trying to update its internal information by uploading data from the BB agent.

- **COMM_STOPPED_RELEASING**

  The EM is deleting all the information related to the communication being stopped.

COMM_STOPPED and COMM_STOPPED_RELEASING are sub-states of the general state Communication Stopped.
COMM_TRYING and COMM_TRYING_PROBLEM_DETECTED are sub-states of the general state Communication Trying.
COMM_ESTABLISHED and COMM_ESTABLISHED_SYNCHRONIZING are sub-states of the general state Communication Established.

5.5.3.1 Changing connection states

The connection state changes can be initiated by the user via the GUI or they are initiated by the AEM.

Communication protocol The communication protocol used between the AEM and the data agent is simple network management protocol (SNMP) over user datagram protocol (UDP/IP).

COMM_STOPPED The user can initiate the communication establishment process with a data agent in connection state COMM_STOPPED. After initiating this process the connection state changes to COMM_TRYING.

COMM_TRYING When the communication state goes COMM_TRYING, the AEM tries to establish a connection with the data agent by sending a SNMP PDU. After the successful connection the AEM checks if the AEM supports the software version of the data gent. If the software version is supported the connection state becomes COMM_ESTABLISHED. If the received data from the data agent contains invalid data the state becomes COMM_TRYING_PROBLEM_DETECTED and the whole communication process will be repeated when a timer expires.

COMM_ESTABLISHED

When the communication state is COMM_ESTABLISHED, COMM_ESTABLISHED_SYNCHRONIZING or COMM_TRYING and the user request to finish the communication with the data agent the communication state becomes COMM_STOPPED_RELEASING. The AEM deletes all the data related to the communication and the state is moved to COMM_STOPPED.

When the communication state is COMM_ESTABLISHED or COMM_ESTABLISHED_SYNCHRONIZING and the AEM detects the loss of communication with the data agent the communication state becomes COMM_TRYING. The AEM starts the process to re-establish the communication with the data agent.

The user can request to close a connection with an NE via the GUI. When the communication session is closed by the AEM, the connection state is changed to NOT_CONNECTED. When the connection state is CONNECTED and the connection is lost, the connection state becomes TRYING. If a communication session loss is detected and the connection is still established, the AEM closes the connection and the connection state also becomes TRYING.

5.5.3.2 Association maintenance

Association

An communication between the AEM and an data agent is established if the AEM can send SNMP input commands and can receive SNMP output commands to/from the data agent for management purposes. The connection state is COMM_ESTABLISHED.

Agent monitoring

The AEM monitors the communication state with the data agent by periodically sending messages to the data agent. If the AEM does not receive a response to a certain number of messages within a certain time, it assumes that the connection to the data agent is lost and tries to connect to the data agent again.

Default values for monitoring

By default these messages are sent by the AEM every five minutes. The response to a message must be received within four minutes and not more than two responses may be lost, otherwise the connection is closed by the AEM.

These values can be configured by the user via the system variables "NEM.association.heartBeatNumber" and "NEM.association.heartBeatTime" in the file $ANYMEDIAPATH/cfg/AnyMediaEM.cfg.

5.5.3.3 NE Management window (tab Data)

This window shows the provisioning information and allows the provisioning and deprovisioning of an NE (data agent).

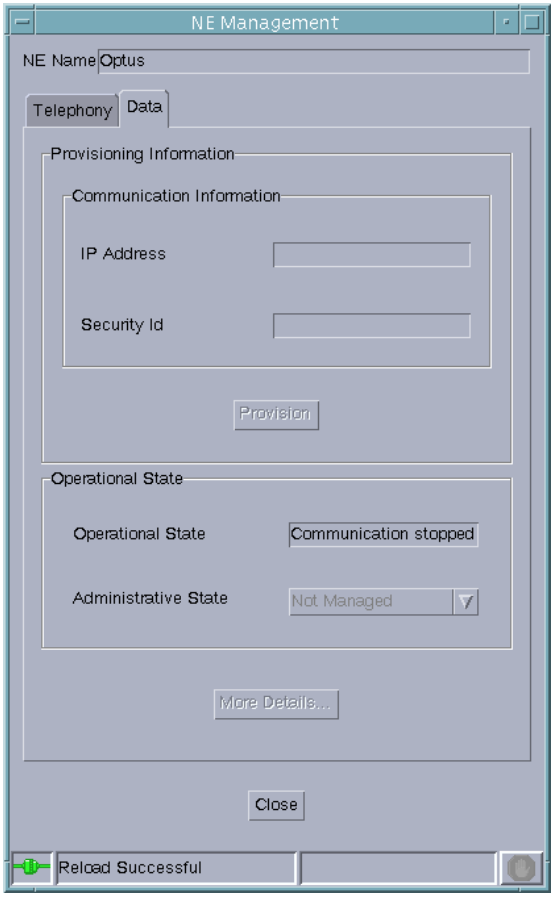


Figure 5-17 NE Management window (tab Data)

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Provisioning Information	Once the connection is established, the following fields cannot be edited unless the connection is interrupted (connection state = Not Managed). **Communications Info**: This field contains the editable text field **IP Address**. This information is mandatory to get a AEM-NE connection. Format: xxx.xxx.xxx.xxx; where x is a numeric [0, 9]. **Authentication Information**: This field contains the text field **Security Id**. This information is also mandatory to get a AEM-NE connection. The Security Id has a range from 3 to 10 characters. The ***Label*** button is used to provision/deprovision the NE. ***Provision***: If the NE is not provisioned or any value has been changed. Provisioning is enabled only if the administrative state is Not Managed (see below). ***Deprovision***: If the NE has been provisioned and no value has been changed.
Operational State	The option menu **Administrative State** shows the possible values: Managed, Not Managed. The text field **Operational State** shows the current state of the data agent. Possible values: Communication Stopped, Communication Stopped (Releasing), Communication Trying, Communication Trying (Problem Detected), Communication Established, Communication Established (Synchronizing).
More Details...	This button provides access to the *Synchronization Data* window (cf. Chapter 5.5.6.2.3, page 5-126). It is available only if the Administrative State of the agent is Managed.

5.5.3.4 Modify NE Management data (data agent)

Procedure Complete the following procedure to manage an NE (data agent).

Step	Procedure

1. Select ***NE*** in the Network Browser or in the background map and ***NE Management*** via the cursor menu. The *NE Management* window pops up.

   This window can also be reached from the *Groups & NEs* window (tab NEs) by clicking on ***NE Management...*** (cf. Chapter 5.4.3, page 5-27).

If you want to ...	then ...
provision the NE	enter or change the values for **IP Address** or **Security Id** in the Provisioning Information field and press ***Provision***.
deprovision an provisioned NE	click on ***Deprovision*** in the Provisioning Information field.
change the administrative state	use the corresponding option menu in the Provisioning Information field.
show/edit the synchronization data	click on ***More Details...***.
exit the window	click on ***Close***.

5.5.4 Shelf View

The purpose of this window is to provide a simple graphical representation of the NE shelves (in case of multiple shelves).

Procedure

Complete the following procedure to display the shelf view:

Step	Procedure
1.	Select ***NE -> Main Shelf*** in the Network Element Browser and ***View*** via the cursor menu or select ***View -> Object*** via the menu bar. The *Shelf View* window pops up.

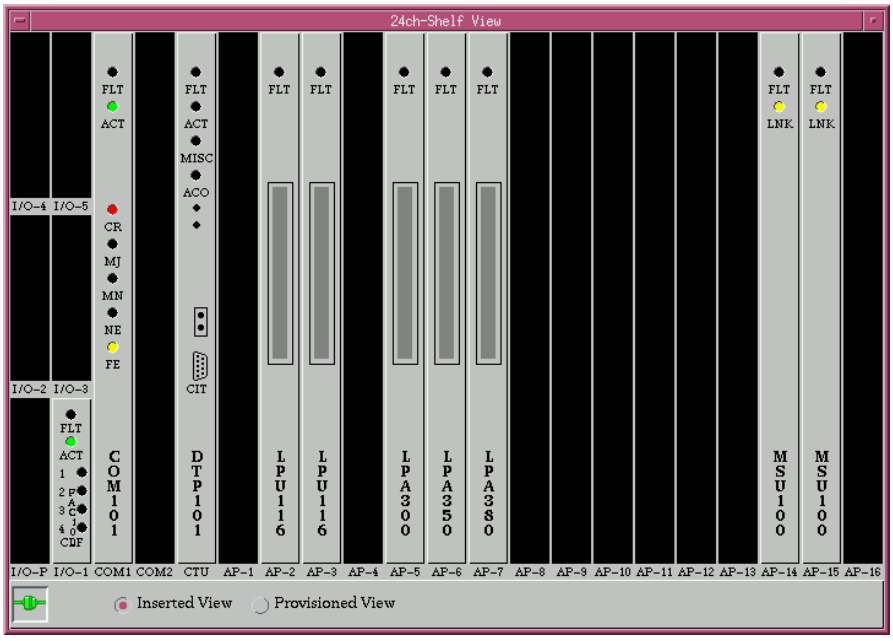


Figure 5-18 Shelf View window

This window provides general inventory information as well as provisioning and alarm information (through the LEDs). Each slot will show either the apparatus code of the inserted card (default view) or the apparatus code provisioned in that slot (provisioned view) or otherwise no apparatus code. If the slot is empty, no card will be shown, otherwise, the slot will display the face-plate of the inserted card with its LEDs (if applicable).

Single clicking on any slot will launch the card-specific window even when the card is not inserted.

The following tables shows the related sections where the packs are described:

Card Type	Apparatus Code	Described in ...
COMDAC	COM100, COM101	Chapter 5.5.5.3, page 5-59
IO-DS1	FAC100	Chapter 5.5.5.1, page 5-54
CTU	DTP100	Chapter 5.5.5.4, page 5-61
AP-Telephony	LPU116, LPA300, LPA380, LPA350, LPA300B, LPA300C, LPA150	Chapter 5.5.5.7, page 5-66
IAT Server	LPS100	Chapter 5.5.5.17, page 5-83
AFM_DS3	LPA900	Chapter 5.5.5.23, page 5-94
ADSL	LPA400, LPA400B, LPA408	Chapter 5.5.5.29, page 5-104

The *Shelf View* window displays different colors for different types of LEDs. The following table describes the colors that are used for each LED type inside every card type. The table describes the colors used when the LED is ON or flashing. If the LED is OFF, the color black is used.

Pack	LED	Color	Meanings
IO-DS1	FLT	red	■ Lit during pack failure ■ Flashes when the pack executes off-line self-test.
	ACT	green	Lit when the pack is service-active.
	CLF1	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 1.
	CLF2	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 2.
	CLF3	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 3.
	CLF4	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 4.
COMDAC	FLT	red	■ Lit when a fault is detected on the pack. ■ Flashes during software download and turn-up.
	ACT	green	Indicates that this COMDAC is active.
	CR	red	Lit when the highest severity alarm is critical.
	MJ	red	Lit when the highest severity alarm is major.
	MN	yellow	Lit when the highest severity alarm is minor.
	NE	yellow	Lit when the source of the fault or abnormal condition is near-end.
	FE	yellow	Lit when the source of the fault or abnormal condition is far-end.

Pack	LED	Color	Meanings
CTU	FLT	red	■ Lit when a fault is detected on the pack ■ Flashes on turn-up.
	ACT	green	Lit when a test is in progress.
	MISC	yellow	Lit when one of the eight miscellaneous alarm inputs is active.
	ACO	green	For future use
All Application Packs	FLT	red	■ Lit when a fault is detected on the pack ■ Flashes when the AP executes off-line shelf-tests.
AP (MDSU)	FLT	red	Lit when a fault is detected on the pack.
	LNK	yellow	■ Lit when loss of clock/sync signal is detected ■ Flashes when incorrect MDSU/MDS2/MDS2B side association is detected.
IAT-Server (NE R1.7.0)	FLT	red	Lit when a fault is detected on the pack.
	CFL	yellow	Lit when a failure of either IAT/RT carrier link from the IAT to the IATS is detected.
	CFG	yellow	Lit when a configuration error or mismatch is detected, as follows: ■ the IATS is placed in an AP slot not provisioned for the IAT server pack type ■ the IATS faceplate DS1 cable is disconnected ■ there is a mismatch between the host T0 provisioning and the IAT phantom CU equipqge (IAT01 only).
	IAT	yellow	Lit when a failure of either linr from the IATS to the IAT (IAT/RT link working) is detected.
AFM	FLT	red	Lit when a fault is detected on the pack.
	ACT	green	Indicates that this AFM is active.
	CR-MJ	red	Lit when the highest severity alarm is critical or major.
	MN	yellow	Lit when the highest severity alarm is minor.
	CLF1	yellow	Lit when a fault or facility alarm occurs on the in-service received D1 port 1.
	CLF2	yellow	Lit when a fault or facility alarm occurs on the in-service received D1 port 2.

See Chapter 7.2 for more details about alarm handling.

5.5.4.1 BAIU Shelf View window

The prinziple of displaying inventory, provisioning and alarm information is the same as for the main shelf (cf. Chapter 5.5.4, page 5-48). However the BAIU shelf is a data shelf, only data packs are inserted (up to 20 AP (slot 0 to 19) and one AFM (slot 0)).

5.5.4.2 MDS2/MDS2B Shelf View window

This window provides general inventory, provisioning and alarm information (through the pack LEDs). Each slot will show the card type inserted and its alarms (when applicable). If the slot is empty, no card will be shown.

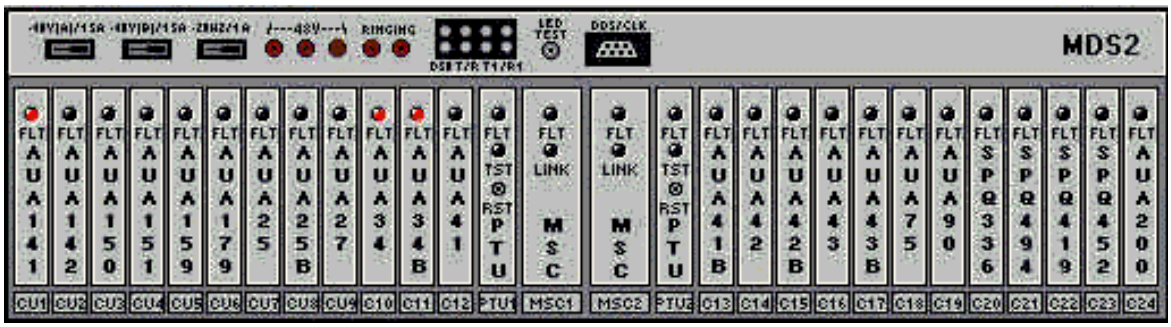


Figure 5-19 MDS2 Shelf View window

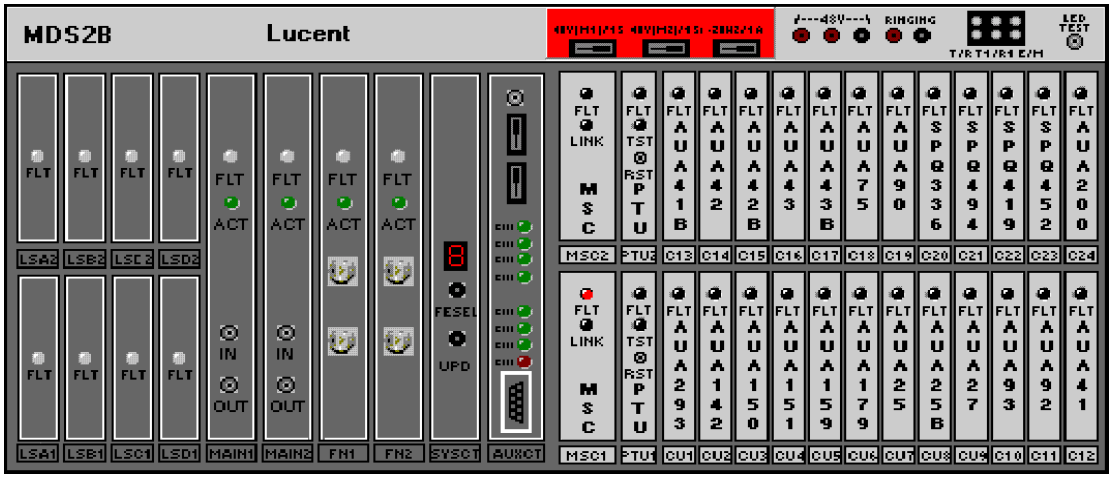


Figure 5-20 MDS2B Shelf View window

Single clicking on any slot will launch the card-specific window (cf. Chapter 5.5.5.9, page 5-71 for MSC, Chapter 5.5.5.11, page 5-73 for PTU, Chapter 5.5.5.13, page 5-75 for CU).

Pack	LED	Color	Meanings
MSC	FLT	red	Lit when a fault is detected on the pack.
	LNK	yellow	■ Lit when loss of clock/sync signal is detected ■ Flashes when incorrect MDSU/MDS2/MDS2B side association is detected.
PTU	FLT	red	Lit when a fault is detected on the pack.
	TST	green	Lit when a channel served by the PTU is under test.

For cards which need to be provisioned (APs and IO_DS1s) it is necessary to represent the slot state since the provisioned data may be different to the inserted card. There are two possible views of this window:

- Inserted view (apparatus codes of inserted cards are shown)
- Provisioned view (apparatus code of the provisioned cards is shown).

The user can switch between the two views via two check box located below the shelf view of the window.

The following table describes the representation of the different slot states:

Slot State	Description and Representation	Inserted View		Provisioned View	
		Pack	Label	Pack	Label
provisioned, inserted and match	The type of the provisioned card is the same as the type of the inserted card.	grey	black	grey	black
provisioned, inserted and mismatch	The type of the provisioned card is different from the type of the inserted card.	grey	dark grey	gray	dark grey
provisioned and not inserted	The operator has provisioned this slot associating it to a type of card but no card is inserted in the slot.	black	-	black	white
not provisioned and inserted	No card type is preprovisioned in the slot but a card is inserted.	grey	dark grey	gray	-
not provisioned and not inserted	No card type is provisioned and no card is inserted in the slot.	black	-	black	-

Slot State	Description and Representation	Inserted View		Provisioned View	
		Pack	Label	Pack	Label
provisioned, not inserted and agent type mismatch	No card is provisioned, no card is inserted in the slot and there is mismatch between the telephony and the data agent.	black	-	black	grey

NOTE:
"Pack" refers to the slot face-plate, "Label" refers to the apparatus code.

NOTE:
The NE does not send the "match" indication for a provisioned data AP. The shelf view therefore indicates "provisioned, inserted and mismatch" until a re-sync is done.

5.5.5 Configuration of the packs

5.5.5.1 IO-DS1 window

The IO-DS1 pack provides four physical DS1 interfaces to accommodate telephony via standard TR-08, TR-303 and INA network interfaces.

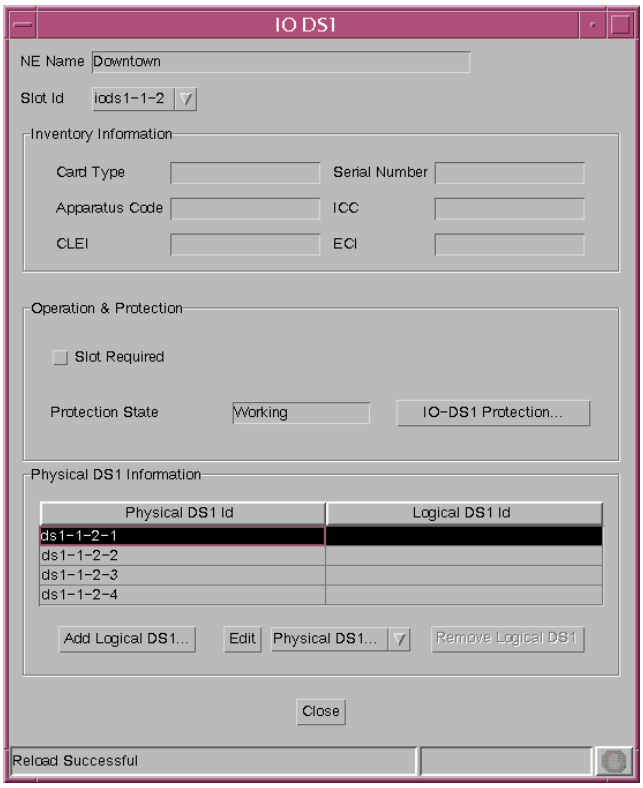


Figure 5-21 IO-DS1 window

This window can be displayed even when the pack is not inserted.

The following table shows the view/edit options of the *IO_DS1* window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Slot	This option menu lists all IO-DS1 of the NE. Slot format: iods1-1-shelf-slot (e.g. iods1-1-2-4 for working IO-DS1s and iods1p-shelf (e.g. iodsp1-1) for the protection IO-DS1. Possible values: iods1-{1}-{1, 5} for working IO-DS1 iods1p-{1} for protection IO-DS1.
Inventory Information	The following fields are empty if no pack is inserted. Otherwise the read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible value: IODS1. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible values are: FAC100. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Operation & Protection	**Slot Required** displays the required state of the shelf slot. This state can be changed by the user as long as the pack is **not** inserted. Default state for iods1: **Not Required** (with the exception of iods1p whose default is **Required**) The ***Apply*** button is available only if the IO-DS1 is not inserted and the required state of the IO-DS1 has been modified by the user. The read-only text field **Protection State** shows whether the selected IO-DS1 is working or not. Possible values: **Working** (providing service) or **Standby** (not in service). The ***IO-DS1 Protection...*** button provides access to the *Shelf Protection* window (tab IO_DS1).

Parameters/ Buttons	Description
Physical DS1 Information	The information in this field is displayed in a table (4 rows, one per physical DS1). NOTE: For the protection IO-DS1these fields are empty and the buttons are disabled. ■ **Physical DS1 id**: Physical address of the DS1 feeders. Format: ds1-slot-port (e.g. ds1-1-{1, 5}-{1, 4}). ■ **Logical DS1 id**: This field shows the id used to identify the logical feeder. Possible values: v3fdr-1-{1, 28} for TR-303 v8fdr-{1, 20}-{a, b, c, d} for TR-08 ina-{1,20} for INA ■ ***Add Logical DS1...***: This button provides access to the *Logical DS1* window. The button is available only if a row in the table is selected and there is no logical DS1 cross-connected to this physical DS1. ■ ***Edit***: This button is associated with an option menu. Possible values: ***Physical DS1***, ***Logical DS1***. Physical DS1 is always enabled, logical DS1 is enabled only if a cross-connection exists between the DS1 ids of the selected row. Therefore the ***Edit*** button provides access to the *Physical DS1* window (cf. Chapter 6.2.3.1, page 6-21) or *Logical DS1* window (cf. Chapter 6.2.3.3, page 6-26). ■ ***Remove Logical DS1...***: This button can be used to remove a cross-connection from the list. The button is enabled only if a row with existing cross-connection is selected.

5.5.5.2 Configure IO_DS1

Complete the following procedure to modify the IO-DS1 data:

Step	Procedure

1. Select ***NE -> Main Shelf -> FAC100*** in the Network Element Browser and ***View*** via the cursor menu
or select ***View -> Object*** via the menu bar
or single click on the pack ***IO_DS1*** in the *Shelf View* window.
The *IO-DS1* window pops up.

If you want to ...	then ...
change the required slot state	use the check box **Slot Required** in the field **Operation & Protection** and click on ***Apply***.
modify the protection scheme	click on ***IO-DS1 Protection...*** button to open the *Shelf Protection* window (IO-DS1 tab - cf. Chapter 5.5.11.3, page 5-146).
add a logical DS1	select a **Physical DS1 Id** in the list with no cross-connected logical DS1 id and press ***Add Logical DS1...***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26). The same result will be obtained by double clicking on the corresponding row.
edit a physical DS1	use the option menu near the ***Edit*** button to select **Physical DS1** and press ***Edit***. The *Physical DS1* window pops up (cf. Chapter 6.2.3.1, page 6-21).
edit a logical DS1	select a row with an existing cross-connection in the **Physical DS1 Information** list, use the option menu near the ***Edit*** button to select **Logical DS1** and press ***Edit***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26).

If you want to ...	then ...
remove a cross-connection	select a row with an existing cross-connection in the **Physical DS1 Information** list and press ***Remove***. A *Warning* window pops up displaying the following message: **`Logical DS1 will be removed. Ok to proceed?`**
exit the window	click on ***Close***.

5.5.5.3 View the COMDAC parameters

Overview

The COMDAC (common data and control) pack performs the main bandwidth management and control functions for the system.

Procedure

Complete the following procedure to view the COMDAC data:

Step	Procedure
1.	Select ***NE -> Main Shelf -> COM100 (or COM101)*** in the Network Element Browser and ***Edit*** via the cursor menu or select ***View -> Object*** via the menu bar or single click on the pack ***COMDAC*** in *Shelf View* window. The *COMDAC* window pops up:

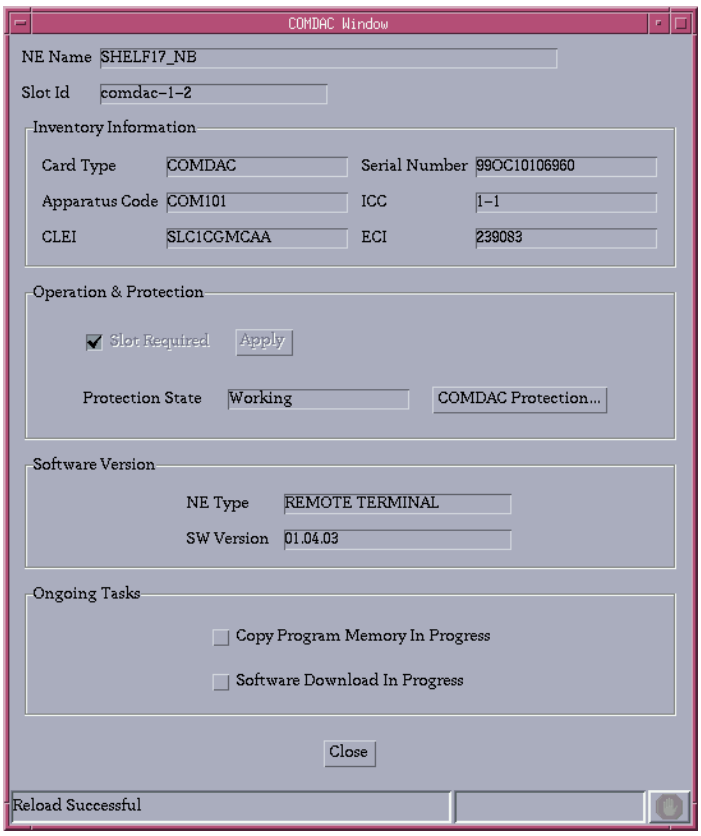


Figure 5-22 COMDAC window

This window contains all the information related to the COMDAC. It can be displayed even when the pack is not inserted.

The following table shows the view/edit options of the *COMDAC* window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	Slot number where the COMDAC is plugged in. Slot format: comdac-1-{1,2}.
Slot Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible value: COMDAC. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible value: COM 101. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Operation & Protection	This field is described in Chapter 5.5.10, page 5-140.
Software Version	**NE Type**: Displays whether the NE is a COT or not. Possible value for this release: REMOTE TERMINAL. **SW Version**: Software version that has been obtained from the NE at connection time. The AEM will have to verify whether the mentioned SW Version is manageable by the system.
Ongoing Tasks	These check boxes indicate operations in progress which can take a long time and must be known by the operator. They will be refreshed when the window is launched or when refreshing the whole window.

2. Click on ***Close*** to exit the window.

5.5.5.4 View the CTU parameters

The CTU (craft test unit) provides both channel testing support and a termination for local operations, administration, maintenance and provisioning.

Procedure

Complete the following procedure to view/edit the CTU data:

Step	Procedure
1.	Select ***NE -> Main Shelf -> CTU*** in the Network Element Browser and ***Edit*** via the cursor menu or select ***View -> Object*** via the menu bar or single click on the pack ***CTU*** in *Shelf View* window. The *CTU* window pops up:

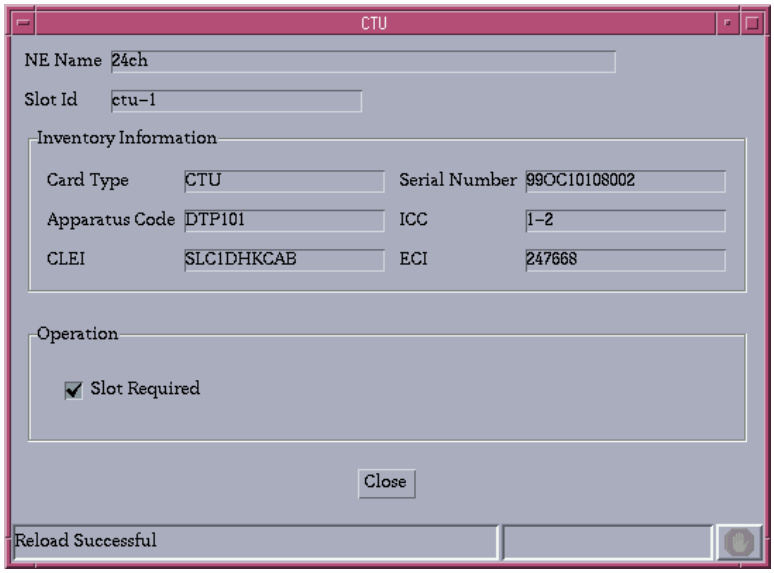


Figure 5-23 CTU window

This corresponding window contains all information related to the CTU. It can be displayed even when the pack is not plugged in.

The following table shows the view/edit options of the *CTU* window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Inventory Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible value: CTU. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible value: DTP101. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the Series Number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Operation & Protection	The check box **Slot Required** displays the required state of the shelf slot. This state can be changed in the case of CTU, regardless of the slot status. Default state for CTU: **Not Required** (empty check box).

2. Use the check box **Slot Required** to define the slot state.

3. Click on ***Close*** to exit the window.

5.5.5.5 Common Application Pack window

Background

AP provisioning will be performed to establish a desired pack type in a desired slot xx. To be fully functional/operational, an AP must both be inserted and provisioned. In addition, the provisioned AP must match the actual type of the inserted pack. An AP can be provisioned and configured by the AEM even if the slot is still empty.

Mixed configuration

In a mixed configuration (telephony/data) the AP provisioning is performed in a separate way (telephony provisioning and data provisioning). A little pane will be always inserted in the *Common Application Pack* window (and specific AP windows) under the ***Close*** button to allow the operator to select what view he wants to see: the COMDAC view (for telephony) or the AFM view (for data). The default view is the COMDAC view.

The following window is used to provision a non-provisioned slot.

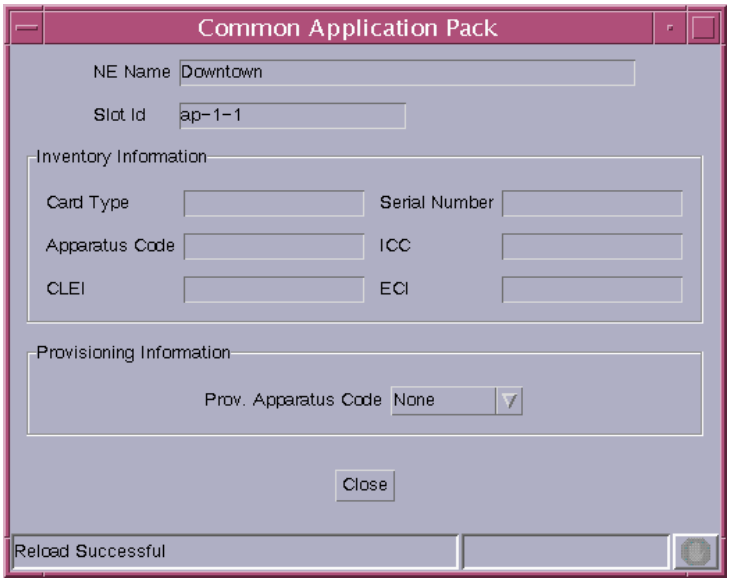


Figure 5-24 Common Application Pack window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE Name of the selected NE (max. 30 characters).
Slot Id	Slot number where the AP is plugged in. Possible values: ap-1-{1,16} or subap-1-{1, 8} (BAIU shelf: ap-1-{0, 19}).

Parameters/ Buttons	Description
Inventory Information	The following fields will be empty if no pack is inserted. Otherwise the read-only text fields provide the following information: **Card Type**: Not applicable. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible values: LPU116, LPA300, LPA300C, LPA380, LPA380C, LPA350, LPA400, LPA400B, LPA 404, LPA414, LPA408, LPS100. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Provisioning Info	The option menu **Provisioned Apparatus Code** lists all AP types available for the NE release in the view selected (COMDAC or AFM). The default value is NONE, so this window is launched when there is not any provisioned pack in the selected slot. It shows only telephony or data APs depending on the view selected (COMDAC or AFM). Once the operator has selected the provisioned apparatus code (pack type), this window will be replaced by the specific AP window (e.g. *IAT Server* window). Possible values for telephony: None, IAT_Server. Possible values for data: None, ADSL, AFM.

5.5.5.6 Provisioning a slot via common AP

Procedure Complete the following procedure to provision a non-provisioned slot:

Step	Procedure
1.	Select ***NE -> Main Shelf (Subshelves) -> not provisioned AP*** in the Network Element Browser and ***Edit*** via the cursor menu or select ***View -> Object*** via the menu bar or single-click on a non-provisioned AP in the *Shelf View* window. The *Common AP* window pops up.
2.	Use the option menu **Provisioned Apparatus Code** to select the desired AP. The corresponding AP window pops up (IAT Server - cf. Chapter 5.5.5.17, page 5-83) (ADSL - cf. Chapter 5.5.5.29, page 5-104).

5.5.5.7 Telephony Application Pack window

The APs provide the line side interface functionality that provide service to end-users.

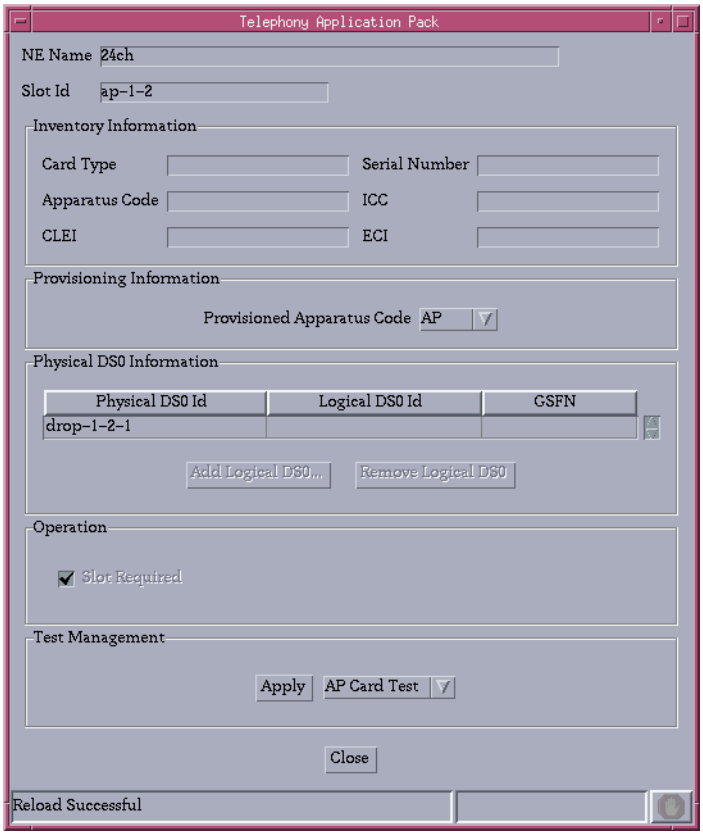


Figure 5-25 Telephony Application Pack window

This window contain all information related to the AP. It can be displayed even when the pack is not inserted. The displayed information differs depending on the type of service.

The following table shows the view/edit options of the *Telephony Application Pack* window:

Parameters/ Buttons	Description
NE Name	NE Name of the selected NE (max. 30 characters).
Slot Id	This text field shows the slot being used as telephony AP. Possible values: ap-1-{1, 16} / subap-1-{1, 8}.

Parameters/ Buttons	Description
Inventory Information	The following fields will be empty, if no pack is provisioned. Otherwise the read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible values: cf. Table 5-1, page 5-78. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible values: LPA380, LPA380C, LPA300, LPA350, LPU116. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Provisioning Info (only available for R1.7)	The option menu **Provisioned Apparatus Code** lists the provisioned packs and the value **None** (for unprovisioning). The ***None*** value can be used to unprovision the AP. The current window will be closed and the *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63).
Operation	The check box **Slot required** can be used to change the state of the self slot. It can be changed only if the pack is not inserted.

Parameters/ Buttons	Description
Physical DS0 Information	This field contains a table displaying physical DS0 information. This information is presented in a 3-column table. The table is sorted by **Physical DS0 Id**. A scroll bar allows navigation through the table. Rows in the table can be selected to edit, add or remove (single or multiple row selection) the corresponding Logical DS0(s) through the use of the ***Edit Logical DS0***, ***Add Logical DS0*** or ***Remove Logical T0...*** buttons (see below). ■ **Physical DS0 Id**: Identifies the port within the AP. Format: drop-shelf-slot-port Possible values: drop-shelf-{1, 16}-{1, 32} ■ **Logical DS0 Id**: Indicates the logical DS0 id within the VRT/VB id shown in the row (only available if the physical port is cross-connected). Possible values: v3dp-{1}-{2048} for TR-303 v8dp-{1, 20}-{1, 96} for TR-08 inads0-{1, 20}-{1, 24} for INA ■ **GSFN**: The generic signalling function (GSFN) identifies the service type provided. The following values are possible: DFLT (default), 2LS, 2GS, Coin, 2FXLS, 2FX, 2RV0, 2NOS, ISDN, 4DO (only for ROC), Data, EBS, AC, LR, NO1, NO2, BRI, TO, DPT, DX4[N, R], FX[O, P][1, 2, 3, 5], FX[S, T][1, 2, 3, 5], EM4[C, H], PLR[1, 2], ETO4, FXO, OCU[1, 2, 3], SW56, TD[O, S][A, B, C, D], TO4, 2RVT, 2LO, COIN2, DFLT2, DPO, DS01, DS02, FXS, EM0, FXOD, FXS0, NO, OCU0, Unknown. The ***Add Logical DS0...*** button provides access to the *Logical DS0* window (cf. Chapter 6.2.4.3, page 6-35). In this case, the physical DS0 id will be transferred. This button is enabled only if a physical DS0 id is selected with no cross-connection to a logical DS0 id. The ***Edit Logical DS0...*** button provides access to the *Logical DS0* window (cf. Chapter 6.2.4.3, page 6-35) where the operator will be able to edit the logical DS0 parameters (whenever this is possible) or even remove the existing cross-connection (remove logical DS0) of the selected physical DS0 from the list. This button is enabled only if a physical DS0 cross-connected to a logical DS0 is selected. The ***Remove Logical DS0...*** button removes the cross-connection selected in the list (see above).

Parameters/ Buttons	Description
Test Management	The ***Apply*** button is used, together with the option menu beside it, to execute one of the following tests: AP card test, Port test. For more information refer to Chapter 7.4.

5.5.5.8 Modify a telephony AP

Procedure Complete the following procedure to modify the telephony AP data:

Step	Procedure
1.	Select ***NE -> Mainshelf -> LPA380 (LPA380C, LPA300, LPA350, LPU116)*** in the Network Element Browser and ***View*** via the cursor menu or select ***View -> Object*** via the menu bar or single click on the pack ***Telephony AP*** in *Shelf View* window. The *Telephony Application Pack* window pops up.

If you want to ...	then ...
unprovision the AP	use the option menu ***Provisioned Apparatus Code*** in the field **Provisioning Information** to select **None**. The *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63).
change the required state	use the check box **Slot required**.
add a logical DS0	select a row in the **Physical DS0 Information** list with no cross-connection and press ***Add Logical DS0...***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35).
edit a logical DS0	select a row in the **Physical DS0 Information** list with an existing cross-connection and press ***Edit Logical DS0...***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35). The same result will be obtained by double clicking in the corresponding row.

If you want to ...	then ...
remove a cross-connection	select the desired **Logical DS0 id** in the **Physical DS0 Information** list and press ***Remove Logical DS0...***. A *Warning* window pops up displaying the following message: **`Logical DS0 will be removed. Ok to proceed?`** NOTE: If the logical DS0 is red-lined the following warning message pops up: **`Redlined logical DS0 will be removed. Ok to proceed?`** If you decide to continue, the remove operation will be started. The information displayed will be updated once the remove operation is finished to show the current list.
exit the window	click on ***Close***.

5.5.5.9 MSC window

The metallic shelf controller (MSC) pack provides the required shelf interface and central control for half of the MDS2 shelf or MDS2B shelf.

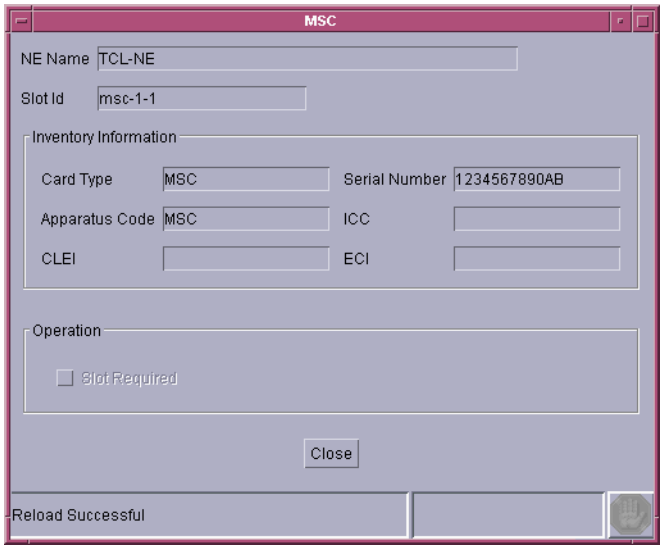


Figure 5-26 MSC window

This window contains all information related to MSC. It can be displayed even when the pack is not plugged in.

The following table shows the view/edit options of the *MSC* window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	This text field shows which one of the two slots available for the MSC is being used. Possible values: msc-1-{1,2}

Parameters/ Buttons	Description
Inventory Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible values: MSC. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible value: MSC100. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Operation	The check box **Slot Required** displays the required state of the shelf slot. This state can be changed by the operator only if the card is not inserted.

5.5.5.10 Modify an MSC

Procedure Complete the following procedure to configure the MSC data:

Step	Procedure
1.	Select ***NE -> MDS2/MDS2B Shelf -> MSC*** in the Network Element Browser and ***Edit*** via the cursor menu or single click on the pack *MSC* in *MDS2/MDS2B Shelf View* window. The *MSC* window pops up.

If you want to ...	then ...
unprovision the MSC	use the option menu ***Provisioned Apparatus Code*** in the field **Provisioning Information** to select **None**. The *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63).
change the required state	use the check box **Slot required**.
exit the window	click on ***Close***.

5.5.5.11 PTU Window

The power test unit (PTU) pack provides power converters to distribute +5V and -5V power to the CUs and 5V power to the MSC.

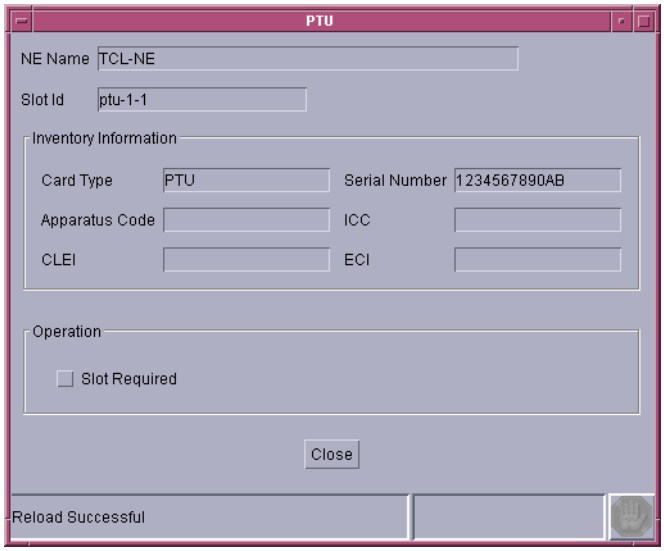


Figure 5-27 PTU window

This window contains all information related to PTU pack. It can be displayed even when the pack is not plugged in.

The following table shows the view/edit options of the *PTU* window:

Parameters/ Buttons	Description/Action
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	This text field shows the slot in which the PTU is plugged in. Possible values: ptu-1-{1,2}.

Parameters/ Buttons	Description/Action
Inventory Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible values: PTU. **Serial Number**: 12-character alphanumeric code that includes date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible value: BDJ200. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Operation	The check box **Slot Required** displays the required state of the shelf slot. This state can be changed by the operator only if the card is not inserted.

5.5.5.12 Configure a PTU

Procedure Complete the following procedure to view/edit the PTU data:

Step	Procedure
1.	Select ***NE -> MDS2/MDS2B Shelf -> PTU*** in the Network Element Browser and ***Edit*** via the cursor menu or single click on the pack ***PTU*** in *MDS2/MDS2B Shelf View* window. The *PTU* window pops up.

If you want to ...	then ...
change the required state	use the check box **Slot required**.
exit the window	click on ***Close***.

5.5.5.13 Channel Unit Window

The channel unit (CU) packs provides the line side interface functionality that provide service to end-users.

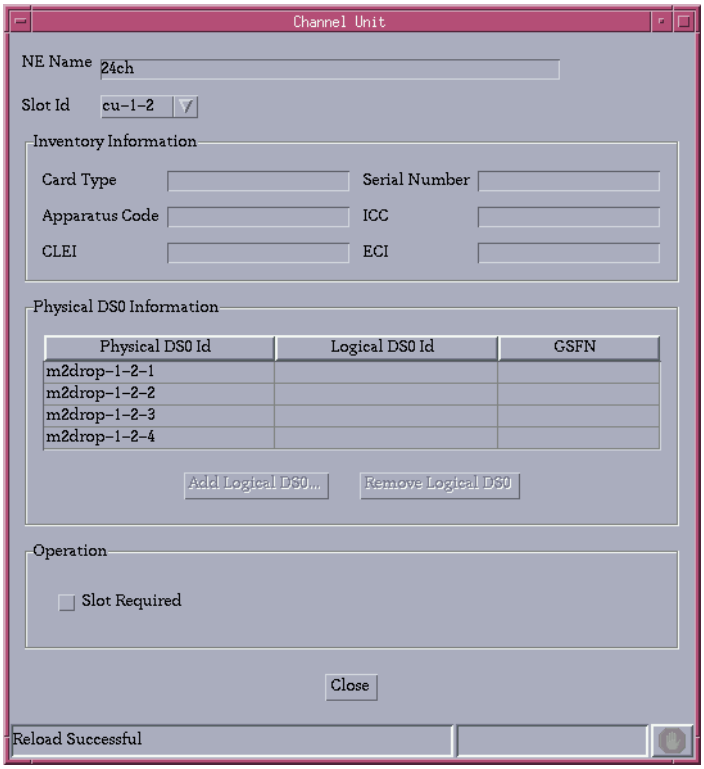


Figure 5-28 Channel Unit window

The corresponding window contains all information related to CU packs. It can be displayed even when the pack is not plugged in.

The following table shows the view/edit options of the *CU* window:

Parameters/ Buttons	Description/Action
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	This option menu shows the slot in which the CU is inserted in the MSD2/MSD2B. Possible values: cu-1-{1, 24}.

Parameters/ Buttons	Description/Action
Inventory Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible values: cf. Table 5-1, page 5-78. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible values: cf. Table 5-1, page 5-78. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Operation	The check box **Slot Required** displays the required state of the shelf slot. This state can be changed by the operator only if the card is not inserted.

Parameters/ Buttons	Description/Action
Physical DS0 Information	This field contains a table displaying physical DS0 information. This information is presented in a 3-column table. The table is sorted by **Physical DS0 Id**. A scroll bar allows navigation through the table. Rows in the table can be selected to edit, add or remove (single or multiple row selection) the corresponding Logical DS0(s) through the use of the ***Edit Logical DS0***, ***Add Logical DS0*** or ***Remove Logical T0...*** buttons (see below). ■ **Physical DS0 Id**: Identifies the port within the AP. Format: drop-shelf-slot-port Possible values: drop-shelf-{1, 16}-{1, 32} ■ **Logical DS0 Id**: Indicates the logical DS0 id within the VRT/VB id shown in the row (only available if the physical port is cross-connected). Possible values: v3dp-{1}-{2048} for TR-303 v8dp-{1, 20}-{1, 96} for TR-08 inads0-{1, 20}-{1, 24} for INA ■ **GSFN**: The generic signalling function (GSFN) identifies the service type provided. The following values are possible: DFLT (default), 2LS, 2GS, Coin, 2FXLS, 2FX, 2RV0, 2NOS, ISDN, 4DO (only for ROC), Data, EBS, AC, LR, NO1, NO2, BRI, TO, DPT, DX4[N, R], FX[O, P][1, 2, 3, 5], FX[S, T][1, 2, 3, 5], EM4[C, H], PLR[1, 2], ETO4, FXO, OCU[1, 2, 3], SW56, TD[O, S][A, B, C, D], TO4, 2RVT, 2LO, COIN2, DFLT2, DPO, DS01, DS02, FXS, EM0, FXOD, FXS0, NO, OCU0, Unknown. The ***Add Logical DS0...*** button provides access to the *Logical DS0* window (cf. Chapter 6.2.4.3, page 6-35). In this case, the physical DS0 id will be transferred. This button is enabled only if a physical DS0 id is selected with no cross-connection to a logical DS0 id. The ***Edit Logical DS0...*** button provides access to the *Logical DS0* window (cf. Chapter 6.2.4.3, page 6-35) where the operator will be able to edit the logical DS0 parameters (whenever this is possible). This button is enabled only if a physical DS0 cross-connected to a logical DS0 is selected. The ***Remove Logical DS0...*** button removes the cross-connection selected in the list (see above).

Table 5-1 CU Cards - Possible Values

Card Type	Apparatus Code	CLEI
SPQ429	SPQ429	SAC1AK0AAA
SPQ442	SPQ442	SAC1AH0AAA
AUA41B	AUA41B	5SC3HJEAAA
AUA45B	AUA45B	5SCUUJ5AAB
AUA75	AUA75	5SC1FF2AXX
SPQ452	SPQ452	5SCTFFGAAB
AUA200	AUA200	5SCTB0DAAA
AUA232	AUA232	5SCTCB0AAA
SPQ444	SPQ444	SAC1BF0AAB
SPQ454	SPQ454	SAC1BG0AAB
MCU-5205	MCU-5205	5SC26TI/2AA
MCU-5405	MCU-5405	5SC26TO2AA

5.5.5.14 Modify a CU

Procedure Complete the following procedure to view/edit the CU data:

Step	Procedure
1.	Select ***NE -> MDS2/MDS2B Shelf -> CU*** in the Network Element Browser and ***Edit*** via the cursor menu or single click on the pack ***CU*** in *MDS2/MDS2B Shelf View* window. The *Channel Unit* window pops up.

If you want to ...	then ...
change the required state	use the check box **Slot required**.
add a logical DS0	select a row in the **Physical DS0 Information** list with no cross-connection and press ***Add Logical DS0...***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35).

If you want to ...	then ...
edit a logical DS0	select a row in the **Physical DS0 Information** list with an existing cross-connection and press ***Edit Logical DS0...***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35) The same result will be obtained by double clicking in the corresponding row
remove a cross-connection	select the desired **Logical DS0 id** in the **Physical DS0 Information** list and press ***Remove Logical DS0...***. A *Warning* window pops up displaying the following message: **`Logical DS0 will be removed. Ok to proceed?`** NOTE: If the logical DS0 is red-lined the following warning message pops up: **`Redlined logical DS0 will be removed. Ok to proceed?`** If you decide to continue, the remove operation will be started. The information displayed will be updated once the remove operation is finished to show the current list.
exit the window	click on ***Close***.

5.5.5.15 MDSU window

The metallic distribution server unit (MDSU) provides the interfaces to the MDS2/MDS2B subshelves.

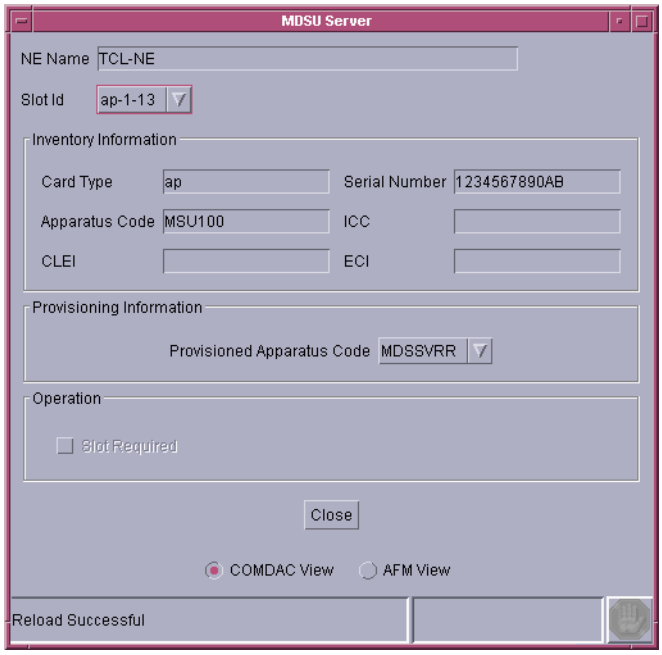


Figure 5-29 MDSU window

The following table shows the view/edit options of the *MDSU* window:

Parameters/ Buttons	Description/Action
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	This option menu shows the slot which is being used as MDSU. Possible values: ap-1-{1, 16}.

Parameters/ Buttons	Description/Action
Inventory Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Provisioning Information	The option menu **Provisioned Apparatus Code** lists the provisioned packs and the value **None** (for unprovisioning). The **None** value can be used to unprovision the AP. The current window will be closed and the *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63). There are two different **Provisioned Apparatus Codes** for the MDSU unit. These indicate whether the pack is the left hand or the right hand unit.
Operation	The check box **Slot Required** displays the required state of the shelf slot. This state can be changed by the operator only if the card is not inserted.

5.5.5.16 Modify an MDSU

Complete the following procedure to modify the MDSU server data:

Step	Procedure

1. Select ***NE -> Main Shelf -> MDSU*** in the Network Element Browser and ***View*** via the cursor menu
or single click on the pack ***MDSU*** in *Shelf View* window.
The *MDSU* window pops up.

2. Use the option menu **Slot Id** to select the desired MDSU.

If you want to ...	then ...
unprovision the MDSU	use the option menu ***Provisioned Apparatus Code*** in the field **Provisioning Information** to select **None**. The *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63).
change the required state	use the check box **Slot required**.
exit the window	click on ***Close***.

5.5.5.17 IAT Server window (NE R1.7)

The integrated access terminal server (IATS) provides up to 24 equivalent DS0 services (switched or non-switched voice or data) per feeder DS1.

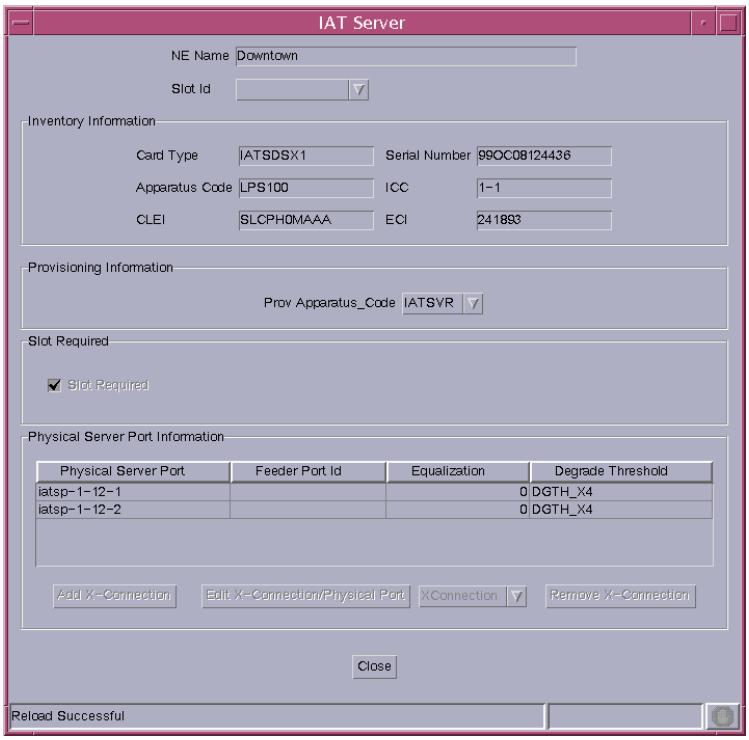


Figure 5-30 IAT Server window

The following table shows the view/edit options of the *IAT Server* window:

Parameters/ Buttons	Description/Action
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	This option menu shows the slot which is being used as IAT Server. Possible values: iat-1-{1, 24}.

Parameters/ Buttons	Description/Action
Inventory Information	The read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack (LPS100). **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Provisioning Information	The option menu **Provisioned Apparatus Code** lists the provisioned pack type and the value **None** (for unprovisioning). The ***None*** value can be used to unprovision the AP. The current window will be closed and the *Common Application Pack* window pops up (cf. Chapter 5.5.5.5, page 5-63).
Slot Required	The check box **Slot Required** displays the required state of the shelf slot. This state can be changed by the operator only if the card is not inserted.
Physical Server Port Information	This field contains a table displaying port information. This information is presented in a 4-column table. The table is sorted by **Physical Server Port Id**. A scroll bar allows navigation through the table. Rows in the table can be selected to edit, add and remove cross-connections through the use of the buttons described below. ■ **Physical Server Port Id**: Identifies the port within the server pack in which the IAT subshelf is cross-connected. ■ **Feeder Port Id**: Specifies the IAT subshelf Id. Up to 32 IAT cross-connections are possible within a Mainshelf. ■ **Equalization**: Indicates the cable length (in feed) to the DSX-1. ■ **Degrade Threshold**: Identifies the signal degrade threshold of the physical port.

Parameters/ Buttons	Description/Action
Physical Server Port Information (continued)	The ***Add X-Connection*** button provides access to the *IAT Subshelf* window (cf. Chapter 5.5.5.19, page 5-87). This button is enabled only if a physical server port id is selected which is not cross-connected. ***Edit***: This button is connected with an option menu. Possible values: ***X-Connection*** and ***Physical Port***. **X-Connection** is enabled if the selected row is cross-connected and provides access to the *IAT Subshelf* window (cf. Chapter 5.5.5.19, page 5-87), **Physical Port** provides access to the *IAT Server Port Information* window (cf. Chapter 5.5.5.21, page 5-92). The ***Remove X-Connection*** button removes the cross-connection selected in the list (see above).

5.5.5.18 Modify an IAT Server

Procedure

Complete the following procedure to modify the IAT server data:

Step	Procedure
1.	Select ***NE -> Mainshelf -> IAT Server*** in the Network Element Browser and ***View*** via the cursor menu or single click on the pack ***IAT Server*** in *Shelf View* window. The *IAT Server* window pops up.
2.	Use the option menu **Slot Id** to select the desired IAT.

If you want to ...	then ...
unprovision the IAT server	use the option menu ***Provisioned Apparatus Code*** in the field **Provisioning Information** to select **None**. The *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63).
change the required state	use the check box **Slot required**.
add a cross-connection	select a row in the **Physical Server Port Information** list with no cross-connection and press ***Add X-Connection...***. The *Subshelf* window pops up (cf. Chapter 5.5.5.19, page 5-87).

If you want to ...	then ...
edit a cross-connection	select a row in the **Physical Server Port Information** list with an existing cross-connection, use the option menu near the *Edit* button to select **X-Connection** and press ***Edit***. The *Subshelf* window pops up (cf. Chapter 5.5.5.19, page 5-87).
edit a physical port	select a row in the **Physical Server Port Information** list, use the option menu near the ***Edit*** button to select **Physical Port** and press ***Edit***. The *IAT Server Port* window pops up (cf. Chapter 5.5.5.21, page 5-92).
remove a cross-connection	select the corresponding **Physical Server Port Id** in the **Physical Server Port Information** list and press ***Remove X-Connection***. A *Warning* window pops up displaying the following message: **`Cross-Connection will be removed. Ok to proceed?`** If you decide to continue, the remove operation will be started. The information displayed will be updated once the remove operation is finished to show the current list.
exit the window	click on ***Close***.

5.5.5.19 IAT Subshelf window (NE R1.7)

This screen is composed of a set of pull-down controls to select the subshelf to be created or edited and the command buttons to provision / deprovision the subshelf.

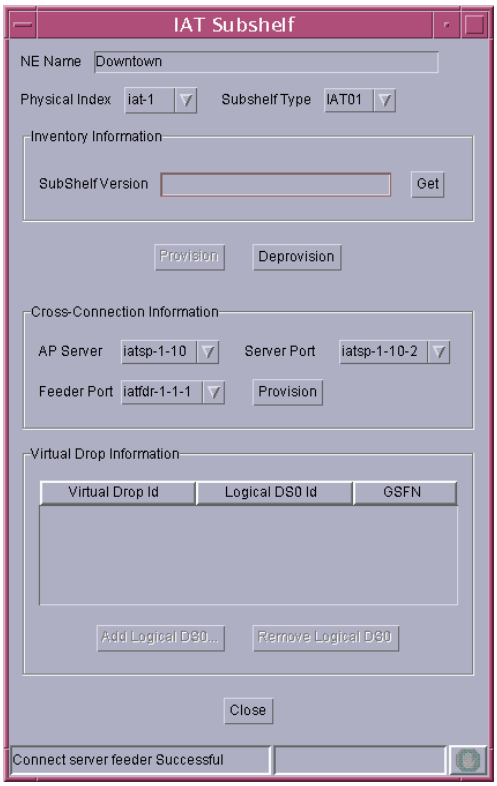


Figure 5-31 IAT Subshelf window

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Physical Index	This option menu provides the **Physical Index** or the subshelf identifier. Identifiers which have already been created and provisioned in the NE are shown with a grey background.
Subshelf Type	This option menu shows the possible subshelf type that can be created in the NE. Possible values: IAT01, IAT02.
Inventory Information	The field **Subshelf Version** shows a 12-character alphanumeric code that includes the subshelf version. The ***Get*** van be used to obtain the subshelf version.

Parameters/ Buttons	Description
Command buttons	The ***Provision*** button is used to provision a new subshelf. This button is enabled only in case of creating a new subshelf. The ***Deprovision*** button is used to deprovision an already provisioned subshelf.
Cross-Connection Information	**AP Server:** This option menu shows all free IAT servers (slot_Id) that can be cross-connected to the IAT subshelf (creation mode) or that are cross-connected to the provisioned IAT subshelf (edit mode). The value NONE can be used to delete the cross-connection to the subshelf. **Server Port:** This option menu shows all free server ports (drop_id) that can be cross-connected to the selected IAT server (creation mode) or that are cross-connected to the selected IAT server (edit mode). The value NONE can be used to delete the cross-connection to the subshelf. **Feeder Port:** This option menu is used to select the feeder port to be used to cross-connect the IAT subshelf. A grey background indicates that the selected server port is already in use. The ***Label*** button is used to confirm the changes (***Provision***: cross-connect the provisioned subshelf; ***Deprovision***: remove the cross-connection to the provisioned subshelf).
Vitual Drop Information	This field contains a table displaying virtual drop information. This information is presented in a 3-column table. The table is sorted by **Virtual Drop Id**. A scroll bar allows navigation through the table. Rows in the table can be selected to edit, add and remove (single row selection) logical DS0 through the use of the buttons described below. ■ **Virtual Drop Id**: Identifies the port within the AP. ■ **Logical DS0 Id**: Indicates the logical DS0 id within the VRT/VB id shown in the row.

Parameters/ Buttons	Description
Physical DS0 Information (continued)	■ **GSFN**: The generic signalling function identifies the signalling and transmission function of the provided service. The following values are possible: DFLT (default), 2LS, 2GS, Coin, 2FXLS, 2FX, 2RV0, 2NOS, ISDN, 4DO (only for ROC), Data, EBS, AC, LR, NO1, NO2, BRI, TO, DPT, DX4[N, R], FX[O, P][1, 2, 3, 5], FX[S, T][1, 2, 3, 5], EM4[C, H], PLR[1, 2], ETO4, FXO, OCU[1, 2, 3], SW56, TD[O, S][A, B, C, D], TO4, 2RVT, 2LO, COIN2, DFLT2, DPO, DS01, DS02, FXS, EM0, FXOD, FXS0, NO, OCU0, Unknown. The ***Label*** button provides access to the *Logical DS0* window (cf. Chapter 6.2.4.3, page 6-35). Two possible values are available: ***Add Logical DS0*** (enabled only if a physical DS0 id is selected with no cross-connection to a logical DS0 id) and ***Edit Logical DS0*** (enabled if a physical DS0 is selected which is cross-connected with a logical DS0). The ***Remove Logical DS0*** button can be used to remove the cross-connection selected in the list (see above).

5.5.5.20 Modify an IAT subshelf

Procedure Complete the following procedure to modify an IAT subshelf:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Create Subshelf -> IAT*** via the cursor menu or select ***NE -> Subshelves*** in the Network Element Browser and ***Edit*** via the cursor menu or select ***View -> Object*** via the menu bar. The *IAT Subshelf* window pops up.

If you want to ...	then ...
provision an IAT subshelf	click on ***Provision***.
deprovision a subshelf	use the option menus **Physical Index** and **Subshelf Type** to select the desired subshelf and click on ***Deprovision***.

If you want to ...	then ...
create a cross-connection to the IAT subshelf	use the option menu **Physical Index** to select the desired subshelf, use the option menus in the field **Cross-Connection Information** to select the corresponding server and ports of the desired cross-connection and click on ***Provision*** in the **Cross-Connection Information** field.
delete a cross-connection to the subshelf	use the option menus **Physical Index** and **Subshelf Type** to select the desired subshelf, use the option menus in the field **Cross-Connection Information** to select the corresponding values for AP Server (NONE), Server Port (NONE) and Feeder Port and click on ***Deprovision*** in the **Cross-Connection Information** field. A *Warning* window pops up displaying the following message: **`Cross connection will be removed. Ok to proceed?`**
add a logical DS0	select a row in the **Physical DS0 Information** list with no cross-connection and press ***Add Logical DS0***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35).
edit a logical DS0	select a row in the **Physical DS0 Information** list with an existing cross-connection and press ***Edit Logical DS0***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35). The same result will be obtained by double clicking in the corresponding row.

If you want to ...	then ...
remove a logical DS0	select the desired **Logical DS0 id** in the **Physical DS0 Information** list and press ***Remove Logical DS0***. A *Warning* window pops up displaying the following message: **`Logical DS0 will be removed. Ok to proceed?`** NOTE: If the logical DS0 is red-lined the following warning message pops up: **`Redlined logical DS0 will be removed. Ok to proceed?`** If you decide to continue, the remove operation will be started. The information displayed will be updated once the remove operation is finished to show the current list.
exit the window	click on ***Close***.

5.5.5.21 IAT Server Port Information window (NE R1.7)

This window is used to change the parameters of the IAT server physical port configuration.

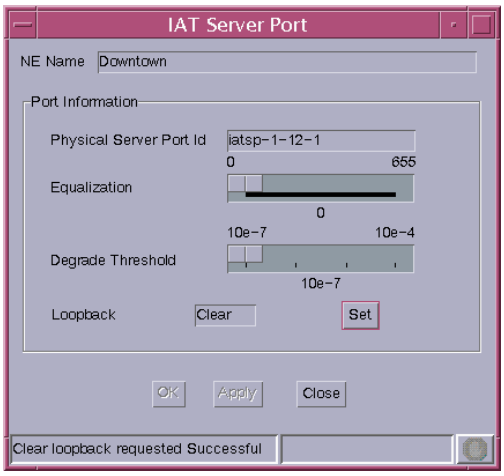


Figure 5-32 IAT Server Port Information window

The following table shows the view/edit options of the *IAT Server Port Information* window:

Parameters/ Buttons	Description/Action
NE Name	NE name of the selected NE (max. 30 characters).
Port Information	**Physical Server Port Id**: Identifies the port within the AP. **Equalization**: This slider can be used to define the cable length (in feed) to the DSX-1. Possible values: O ... 655. **Degrade Threshold**: This slider can be used to define the signal degrade threshold of the physical port. Possible values: 10^{-7} ... 10^{-4} **Loopback**: This field displays the current loopback state (clear or set). This state can be changed via the label button on the right hand side. ***Label***: This button is used to set or clear the physical DS1 loopback. It is labeled ***Set*** if the current loopback state is clear and vice versa.
Command Buttons	The ***OK*** button is used to confirm the changes and to leave the window. The *IAT Server* window is visible again. The ***Apply*** button is used to confirm the changes.

5.5.5.22 Configure an IAT server port

Procedure

The *IAT Server Port Information* window can be reached only from the *IAT Server* window (cf. Chapter 5.5.5.17, page 5-83) by clicking on ***Edit Physical Port*** button.

If you want to ...	then ...
change the value of the cable length	Use the **Equalization** slider to define the desired value and click on ***Apply***.
change the degrade threshold	Use the **Degrade Threshold** slider to define the desired threshold and click on ***Apply***.
change the loopback state	Press the *Label* button at the right hand side of the **Loopback** field and click on ***Apply***.
exit the window	press ***Close***.

5.5.5.23 AFM window (data application)

This screen is used to show/modify the AFM parameters. It can also be used to reset and to edit the feeder ports.

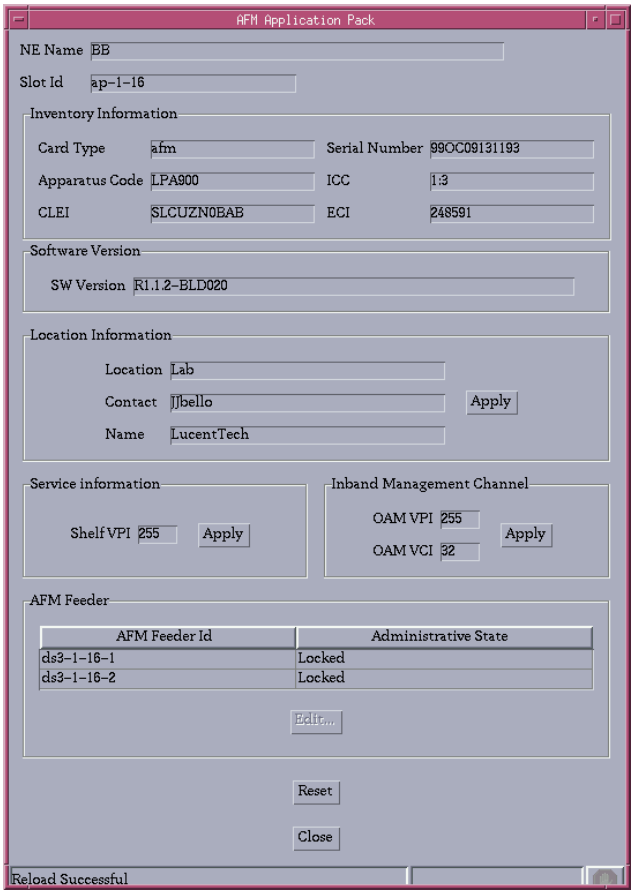


Figure 5-33 AFM window

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Slot Id	This text field shows the slot in which the AFM is inserted. Possible values: ap-1-{1, 16} for FAST shelf, ap-1-{0, 19} for BAIU shelf. In this release the only possible value is ap-1-16 for FAST shelf and ap-1-0 for BAIU shelf.

Parameters/ Buttons	Description
Inventory Information	The following fields will be empty if no pack is inserted. Otherwise the read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible values: AFM_DS3 (LPA900). **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible values: LPA900. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Not applicable. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack.
Software Version	This field shows the software version of the inserted AFM_DS3 pack.
Location Information	NOTE: The following text fields must be filled up. Empty fields are not supported by the AFM. **Location**: This text field is used to define a location name where the NE is placed. **Contact:** This text field is used to enter the name of the people who manage the NE. **Name**: This text field can be used to enter a name for the mainshelf. The ***Apply*** button is used to confirm the changes in the text fields above.
Service Information	**Shelf VPI**: This field is used to show/change the VPI used in all feeder VCIs. Possible values: {1, 255}. The ***Apply*** button is used to confirm the changed Shelf VPI.

Parameters/ Buttons	Description
Inband Management Channel	**OAM VPI**: This field shows the VPI used to communicate with the NE. Possible values: {1, 255}. **OAM VCI:** This field shows the VCI used to communicate with the NE. Possible values: {32, 63}, only 32 if OAM VPI = Shelf VPI. The ***Apply*** button is used to confirm the changes in the text fields above. NOTE: If one of the parameters is changed the communication with the NE could be lost.
AFM Feeder	The information in this field is displayed in a table: ■ **AFM Feeder Id**: Id of the feeder port. ■ **Administrative State**: Administrative state of the feeder port: Locked, Unlocked. The ***Edit*** button provides access to the *AFM Feeder* window. This button is enabled only if a feeder has been selected.
Reset	This button is used to reset the AFM pack.

5.5.5.24 Modify an AFM (data application)

Procedure Complete the following procedure to modify an AFM pack:

Step	Procedure

1. Select ***NE -> Main Shelf -> LPA900*** in the Network Element Browser and ***Edit*** via the cursor menu
or select ***View -> Object*** via the menu bar
or single-click on ***AFM _DS3*** in the *Shelf View* window.
The *AFM* window pops up.

If you want to ...	then ...
edit the location information	edit the parameters in the field **Location Information** and press ***Apply***.
edit the service information	enter a new value for **Shelf VPI** and press ***Apply***. The following warning message pops up: **`Changing the Shelf VPI may be service affecting and it will take a time. Do you want to continue?`**
edit the inband management channel NOTE: If one of the parameters is changed the communication with the NE could be lost.	enter new values for **OAM VPI** and **OAM VCI** and press ***Apply***. The following warning message pops up: **`Changing the OAM VPI/VCI may be service affecting. It will take a time and it can make that communication with NE is not recovered if OAM PVC is used for management communications. Do you want to continue?`** NOTE: If the same value has been entered for OAM VPI as for Shelf VPI, the only possible value for OAM VCI is 32!
edit an AFM feeder	select the desired feeder and press ***Edit*** or double click on the row entry. The *AFM Feeder* window pops up (cf. Chapter 5.5.5.25, page 5-99).

If you want to ...	then ...
reset the AFM pack	click on ***Reset***. The following warning message pops up: **`Resetting the AFM may be service affecting and will take a time. Do you want to continue?`**

2. Click on ***Close*** to exit the window.

5.5.5.25 AFM Feeder window (data application)

This screen is used to configure the AFM feeder parameters. It can be reached from the *AFM* window (cf. Chapter 5.5.5.23, page 5-94).

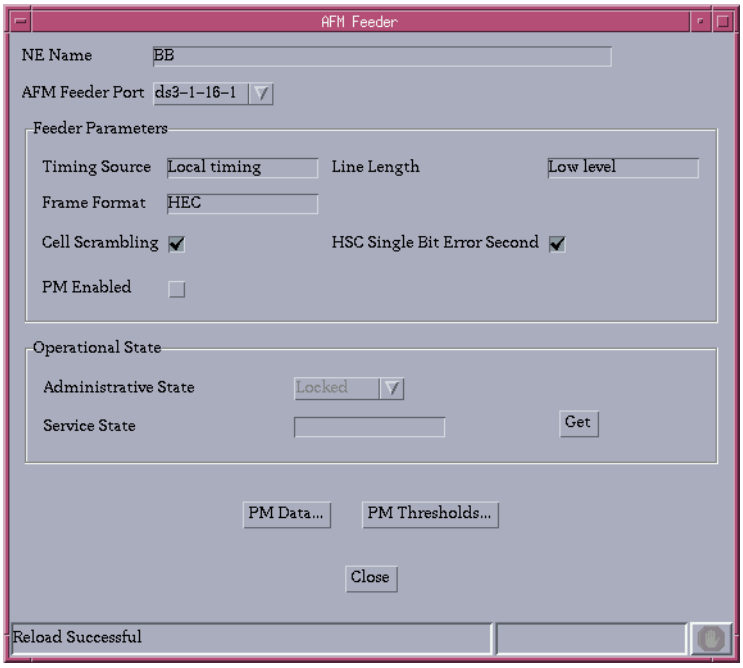


Figure 5-34 AFM Feeder window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
AFM Feeder Port	This option menu displays the available feeder ports which can be selected.

Parameters/ Buttons	Description
Feeder Parameters	**Timing Source:** This text field shows the used timing source: Free Running or Looped Timed. **Line Length**: This option menu can be used to select the desired line length. Possible value: Low Level (0 ... 224 feet), High Level (225 ... 450 feet). **Frame Format:** This option menu is used to select one of the two frame formats: HEC, PLCP. **Cell Scrambling:** This check box can be used to enable/disable the scrambling of cells. **HSC Single Bit Error Second:** This check box can be used to discard all cells with uncorrected header errors. Possible values: Enabled, Disabled. **PM Enable:** This check box can be used to enable/disable the creation of performance monitoring data.
Operational State	The option menu **Administrative State** provides the possible states that can be used: Locked and Unlocked. NOTE: The communication with daisy-chained NEs can be lost when changing from Unlocked to Locked. The field **Service State** shows the state of the AFM feeder obtained (on demand) by the user. Possible values: Enabled, Disabled, Testing, Unknown, Dormant. The ***Get*** button can be used to update the display of the Operational State.
PM Data	This button provides access to the *AFM Feeder PM Data* window.
PM Thresholds	This button provides access to the *AFM Feeder PM Threshold* window.

5.5.5.26 Modify an AFM feeder (data application)

This window is reached from the *AFM* window (cf. Chapter 5.5.5.23, page 5-94) by pressing the ***Edit*** button.

Procedure Complete the following procedure to modify an AFM feeder:

Step	Procedure

1. Use the option menu **Feeder Port** to select the desired port:

If you want to ...	then ...
change the feeder parameters	use the option menus and check boxes to change the corresponding parameters.
get the performance monitoring data	click on ***PM Data***. The *AFM Performance Monitoring* window pops up (cf. Chapter 8.3.1).
modify the performance monitoring thresholds	click on ***PM Thresholds***. The *AFM Feeder PM Threshold* window pops up (cf. Chapter 5.5.5.27, page 5-102).
change the administrative state NOTE: The communication with daisy-chained NEs can be lost when changing from Unlocked to Locked.	use the option menu **Administrative State of Second Feeder**. NOTE: When changing from Unlocked to Locked the following warning messages appears: **Changing the administrative state of second AFM feeder may be service affecting if there are daisy-chained AFMs. Do you want to continue?**

2. Click on ***Close*** to exit the window.

5.5.5.27 AFM Feeder PM Threshold window (data application)

This screen is used to configure the feeder PM threshold parameters. It can be reached from the *AFM Feeder* window (cf. Chapter 5.5.5.25, page 5-99).

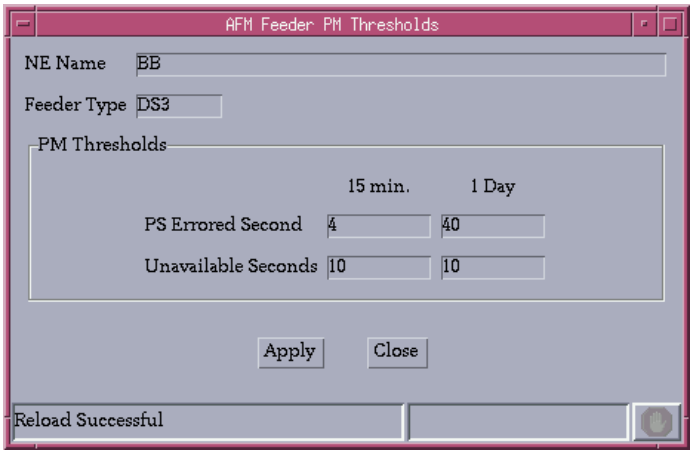


Figure 5-35 AFM Feeder PM Thresholds window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Feeder Type	This field displays the feeder type: DS3.
PM Thresholds	The following parameters are applicable to all feeders. **PS Errored Second (PSES)**: These text fields show the PSES thresholds for 15-minute/1-day periods. A PSES is a second with 44 or more PCVs or one or more OOF defects or a detected incoming AIS. This gauge is not incremented when UASs are counted. The maximum value for 15 minutes is 900, the maximum value for 1 day is 86400. **Unavailable Second (UAS):** These text fields show the UAS thresholds for 15-minute/1-day periods. The UASs are calculated by counting the number of seconds that the interface is unavailable. The maximum value for 15 minutes is 900, the maximum value for 1 day is 86400.
Apply	This button is used to confirm the changes.

5.5.5.28 Define AFM Feeder PM thresholds (data application)

Procedure Complete the following procedure to define the feeder PM thresholds:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***AFM Feeder PM Threshold*** via the cursor menu. The *AFM Feeder PM Thresholds* window pops up. This window can also be reached from the *AFM Feeder* window (cf. Chapter 5.5.5.25, page 5-99) by pressing the ***PM Thresholds*** button.
2.	Use the corresponding text fields to define the desired thresholds and press ***Apply***.
3.	Click on ***Close*** to exit the window.

5.5.5.29 ADSL Application Pack window (data application)

This window includes inventory data, operation and protection information as well as general drop information.

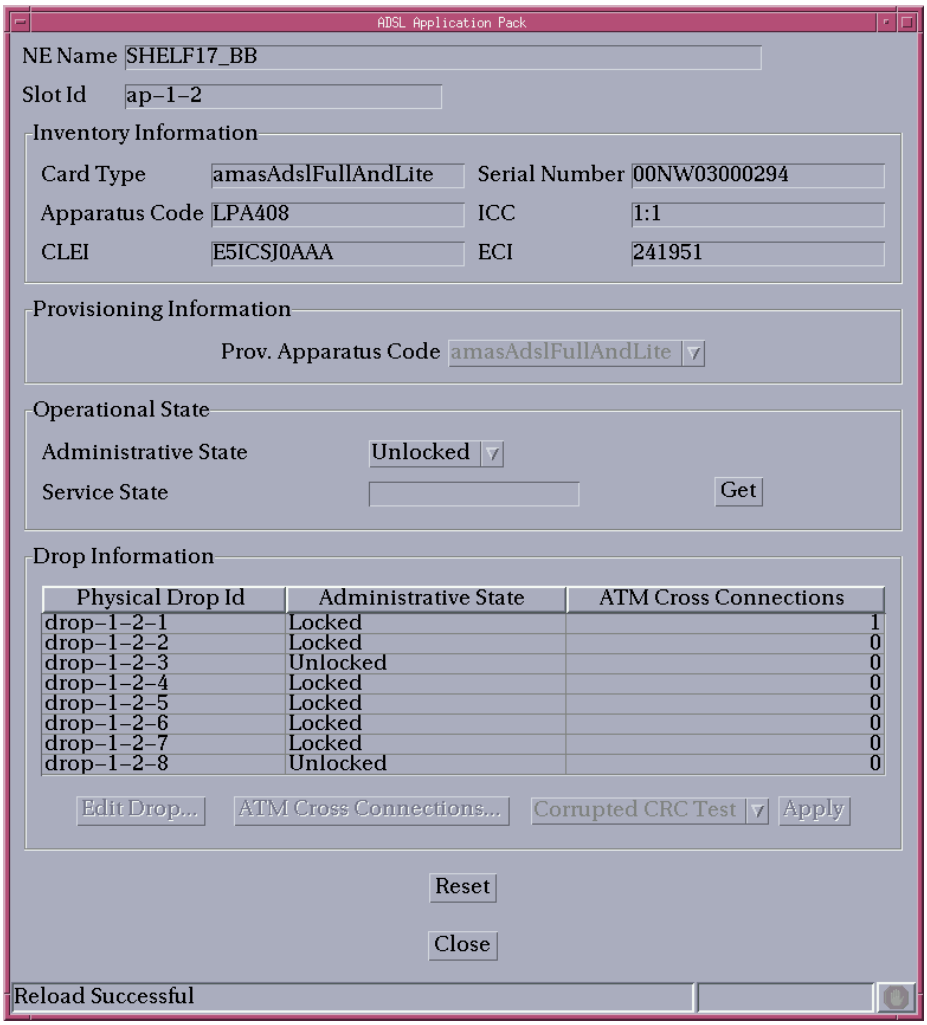


Figure 5-36 ADSL Application Pack window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Slot Id	This field displays the slot id. Possible values: ap-1-{1, 15} for FAST shelf (ap-1-{1, 19} for BAIU shelf) or subap-{1, 8}-{1, 8}.
Inventory Information	The following fields will be empty if no pack is inserted. Otherwise the read-only text fields provide the following information: **Card Type**: 11-character mnemonic used to identify the general type of function provided. Possible values: ADSL. **Serial Number**: 12-character alphanumeric code that includes the date and place of manufacture. **Apparatus Code**: Specifies the function of the pack. Possible values: LPA400, LPA400B, LPA404, LPA414, LPA408. **ICC (InterChangeability Code)**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the series number. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes.
Provisioning Information	The option menu **Provisioned Pack Type** shows ADSL (for a provisioned slot) and the value **None** (for a non-provisioned slot). This option menu is available only if the administrative state is Locked. NOTE: The **Provisioned Pack Type** may be different from the **Apparatus Code** shown in the Inventory Information field. The **Apparatus Code** is related to a certain card (LPA400B) whereas the **Provisioned Pack Type** is related to a family of cards (ADSL).
Operational State	The option menu **Administrative State** provides the possible states that can be used: Locked, Unlocked. The field **Service State** shows the state of the AFM feeder obtained (on demand) by the user. Possible values: Enabled, Disabled, Fault Condition (NE R1.4), Under Reboot, Under testing, Under SW Download (NE R1.4), Dormant (NE R1.4). The ***Get*** button can be used to update the display of the Operational State.

Parameters/ Buttons	Description
Drop Information	A table shows the ADSL drops and the created cross-connections. The table is sorted by ADSL drops. ■ **Physical Drop Id**: Identifies the ADSL drop within the AP. ■ **Administrative State**: Shows the current state of the drop. Possible values: Locked, Unlocked. ■ **ATM Cross-Connections**: Indicates the number of created cross-connections. The ***Edit Drop*** button provides access to the *ADSL Drop* window. It is enabled if a drop is selected in the table above. The ***ATM Cross-Connections*** button provides access to the *ATM Cross-Connectio*n window. It is enabled if a drop is selected in the table above. The ***Apply*** button can be used to start the Port BIST Test or the Corrupted CRC Test. The desired test is selected by means of the option menu. For more information refer to Chapter 7.4.
Reset	This button can be used to reset the pack.
If there is a mismatch between the COMDAC view and the AFM view an additional field is available. Two radio buttons (**COMDAC View**, **AFM View**) can be used to select the desired view. A text field explains the type of mismatch.	

5.5.5.30 Modify an ADSL pack (data application)

Procedure Complete the following procedure to modify an ADSL drop:

Step	Procedure

1. Select ***NE -> Main Shelf -> ADSL*** in the Network Element Browser and ***Edit*** via the cursor menu
or select ***View -> Object*** via the menu bar
or single-click on ***ADSL*** in the *Shelf View* window.
The *ADSL AP* window pops up.

If you want to ...	then ...
unprovision the AP	use the option menu **Provisioned Apparatus Code** to select NONE and press ***Apply***. The *Common AP* window pops up (cf. Chapter 5.5.5.5, page 5-63).
change the administrative state	use the option menu **Administrative State**. NOTE: When changing from Unlocked to Locked the following warning messages appears: **Changing the administrative state of the ADSL pack may be service affecting. Do you want to continue?**
edit an ADSL drop	select the desired ADSL drop in the **ADSL Drop Information** table and click on ***Edit Drop*** or double click on the row entry. The *ADSL Drop* window pops up (cf. Chapter 5.5.5.31, page 5-109).
edit/create an ATM cross-connection	select an ADSL drop with an assigned cross-connection in the **ADSL Drop Information** and click on ***ATM Cross-Connections***. The *ATM Cross-Connection* window pops up (cf. Chapter 6.3.2).

If you want to ...	then ...
start the BIST test	use the option menu near the ***Apply*** button to select **BIST Test** and press ***Apply***. See also Chapter 7.4.2.3.
start the corrupted CRC test	use the option menu near the ***Apply*** button to select **Corrupted CRC Test** and press ***Apply***. See also Chapter 7.4.2.2.
reset the pack	Click on ***Reset***. The following warning message pops up: **Resetting the ADSL Pack may be service affecting. Do you want to continue?**

2. Click on ***Close*** to exit the window.

5.5.5.31 ADSL Drop window (data application)

This screen is used to configure the ADSL drops. It can also be used to remove the related cross-connections.

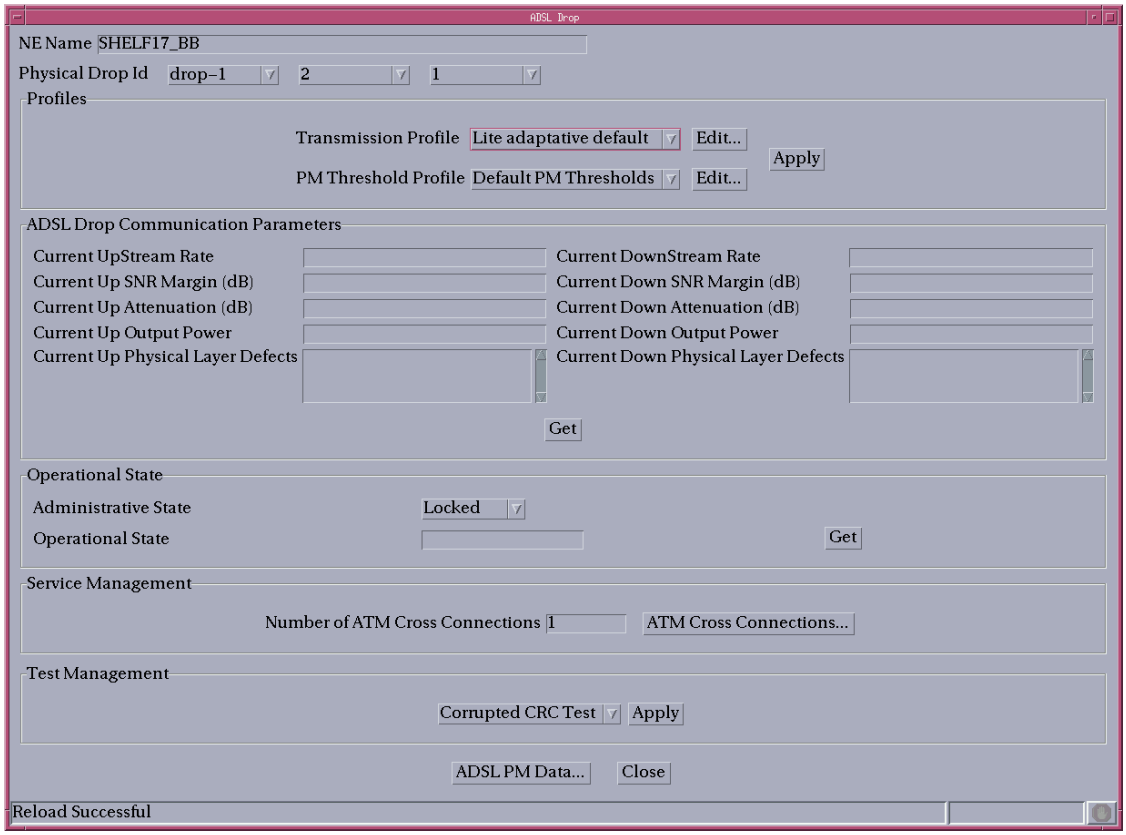


Figure 5-37 ADSL Drop window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Physical Drop Id	These fields display the ADSL drop id by means of three option menus: ■ The first one contains the drop shelf. Format: drop-1 or subdrop-{1, 8}. None is also allowed. ■ The second one contains the slot number inside the NE, but only for slots in which an ADSL pack is inserted. Format: {1, 16} for FAST shelf ({0, 19} for BAIU shelf) or {1, 8} for subshelf. None is also allowed. ■ The third one contains the drop number inside the slot indicated on the previous list {1, x}. Format: drop-shelf-slot-port. Possible values: drop-1-{1, 16}-{1, x} or drop-1-{0, 19}-{1, x} or subdrop-{1, 8}-{1, 8}-{1, x}. None is also allowed. (depending on the ADSL type x can be 4 or 8).
Profiles	**Transmission Profile**: This option menu lists all available transmission profiles. Selection of a profile is possible only if the administrative state is locked. The following profiles are available by default: ■ 1-lite_flexible_default ■ 2-full_flexible_default ■ 3-lite_explicit_default ■ 4-full_explicit_default. ***Edit***: This button provides access to the *Transmission Profile* window (cf. Chapter 5.5.5.33, page 5-114). **PM Profile:** This option menu lists all available PM profiles. Selection of a profile is possible only if the administrative state is locked. The following profiles are available by default: ■ 1-disable_all_Thresholds ■ 2-default_PM_Thresholds. ***Edit***: This button provides access to the *Threshold Profile* window (cf. Chapter 5.5.5.35, page 5-119). The ***Apply*** button is used to confirm the changes of the selected profiles. It is only enabled if any of the profiles have been modified. NOTE: If the physical drop is in service this operation is not allowed.

Parameters/ Buttons	Description
ADSL Drop Communication Parameters	This field shows the values of the following ADSL drop parameters: ■ **Current Upstream Rate** ■ **Current Downstream Rate** ■ **Current Up SNR Margin (dB)** ■ **Current Down SNR Margin (dB)** ■ **Current Up Attenuation (dB)** ■ **Current Down Attenuation (dB)** ■ **Current Up Physical Layer Defects** (No AP communication, No defect, Loss of Framing, Loss of Signal, Loss of Power, Loss of Link, Loss of Signal Quality, Data init failure, Config init failure, Protocol init failure, No peer ATU present). ■ **Current Down Physical Layer Defects** (No AP communication, No defect, Loss of Framing, Loss of Signal, Loss of Power, Loss of Signal Quality). ■ **Current Up Output Power** ■ **Current Down Output Power**. The ***Get*** button can be used to retrieve the current values from the NE.
Operational State	The option menu **Administrative State** provides the possible states that can be used: Locked and Unlocked. The field **Operational State** shows the state of the ADSL drop obtained (on demand) by the user. Possible values: Enabled, Disabled, Testing, Unknown, Dormant. The ***Get*** button can be used to update the display of the Operational State.
Service Management	**Number of ATM Cross-Connections**: This field indicates the number of ATM cross-connections related to the ADSL port. The ***ATM Cross-Connections*** button provides access to the *ATM Cross-Connection* window.
Test Management	The ***Apply*** button can be used to start the Port BIST Test or the Corrupted CRC Test. The desired test is selected by means of the option menu.
ADSL PM Data	This button provides access to the *ADSL Performance Monitoring Data* window.

5.5.5.32 Modify an ADSL drop (data application)

This window is reached from the *ADSL Pack* window (cf. Chapter 5.5.5.29, page 5-104) by pressing the ***Edit Drop*** button in the **ADSL Drop Information** field.

Procedure

Complete the following procedure to modify an ADSL drop:

Step	Procedure

1. Use the option menus **Physical Drop Id** to select the desired ADSL drop.

If you want to ...	then ...
edit a transmission profile	use the option menu **Transmission Profile** to select the desired profile and press ***Edit***. The *Transmission Profile* window pops up (cf. Chapter 5.5.5.33, page 5-114). Back in the *ADSL Drop* window, after modifying the profile, press ***Apply*** to confirm the changes.
edit a threshold profile	use the option menu **PM Profile** to select the desired profile and press ***Edit***. The *Threshold Profile* window pops up (cf. Chapter 5.5.5.35, page 5-119). Back in the *ADSL Drop* window, after modifying the profile, press ***Apply*** to confirm the changed profile.
change the administrative state	use the option menu **Administrative State**. NOTE: When changing from Unlocked to Locked the following warning message appears: **Changing the administrative state of the ADSL drop may be service affecting. Do you want to continue?**
add/edit/remove cross-connections	click on ***ATM Cross-Connections***. The *ATM Cross-Connection* window pops up (cf. Chapter 6.3.2).

If you want to ...	then ...
start the BIST test	use the option menu near the ***Apply*** button to select **BIST Test** and press ***Apply***. See also Chapter 7.4.2.3.
start the corrupted CRC test	use the option menu near the ***Apply*** button to select **Corrupted CRC Test** and press ***Apply***. See also Chapter 7.4.2.2.
edit the ADSL PM data	click on ***ADSL PM Data***. The *ADSL Performance Monitoring Data* window pops up (cf. Chapter 8.2.1).

2. Click on ***Close*** to exit the window.

5.5.5.33 Transmission Profile window (data application)

This window is used to create/modify/remove ADSL transmission profiles.

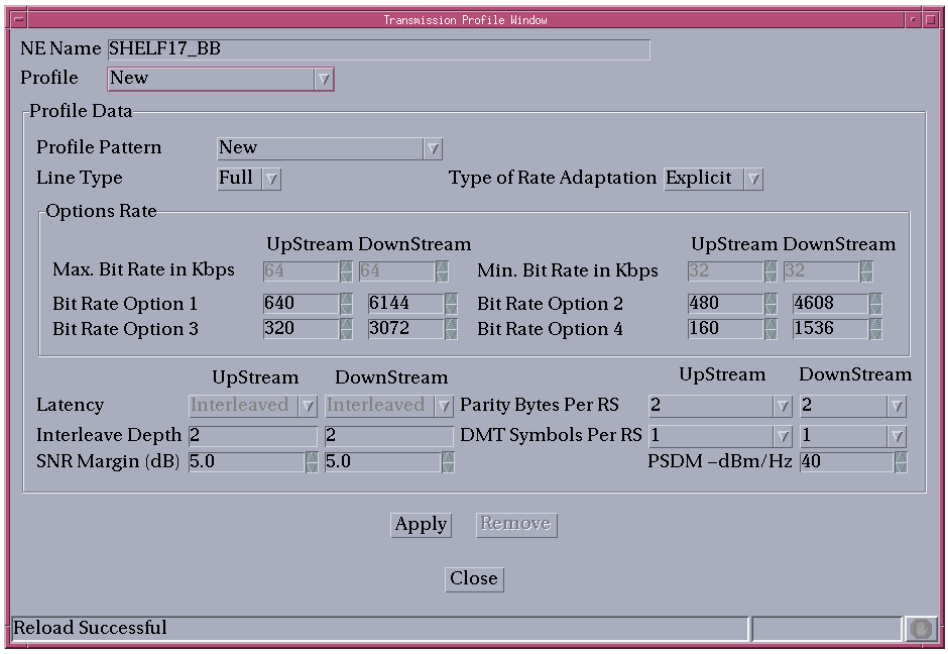


Figure 5-38 Transmission Profile window

The following table shows the view/edit options of this window.

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Profile	This option menu contains the available profiles (for editing) and NEW (for creating a new profile). Format: txp-{1, 128}. NOTE: The first four default profiles (txp-1 to txp-4) can neither be edited nor removed. 1-lite_flexible_default 2-full_flexible_default 3-lite_explicit_default 4-full_explicit_default.

Parameters/ Buttons	Description
Profile Data	**Profile Pattern**: This option menu is used to get an example for a new profile. It is enabled only if NEW is selected in the option menu above. Otherwise the name of the selected profile is displayed. **Line Type**: This option menu shows the possible sub-types for a new profile: Full, Lite. **Type of Rate Adaption**: This option menu is used to select one of the following values: Explicit (default), Flexible.
Profile Data Options Rate	The parameters in this field are enabled or disabled depending on the selected value in the **Type of Rate Adaption** field. The following two parameters are enabled only if the **Type of Rate Adaption** is Flexible. **Max. Bit Rate in kbps**: Two spin buttons (upstream and downstream) can be used to define the values for the maximum bit rate. Possible values: upstream: 32 ... 1440 (steps of 32), downstream: 32 ... 13120 (steps of 32). **Min. Bit Rate in kbps**: Two spin buttons (upstream and downstream) can be used to define the values for the minimum bit rate. Possible values: upstream: 32 ... 1440 (steps of 32), downstream: 32 ... 13120 (steps of 32).

Parameters/ Buttons	Description
Profile Data Options Rate (continued)	The following four parameters are enabled only if the **Type of Rate Adaption** is Explicit. **Bit Rate (kbps) Option 1**: Two spin buttons (upstream and downstream) can be used to define the values for the option 1 bit rate. Possible values: upstream: 32 ... 1440 (default = 640) downstream: 32 ... 13120 (default = 6144). **Bit Rate (kbps) Option 2**: Two spin buttons (upstream and downstream) can be used to define the values for the option 2 bit rate. Possible values: upstream: 32 ... 1440 (default = 480) downstream: 32 ... 13120 (default = 4608). **Bit Rate (kbps) Option 3**: Two spin buttons (upstream and downstream) can be used to define the values for option 3 bit rate. Possible values: upstream: 32 ... 1440 (default = 320) downstream: 32 ... 13120 (default = 3072). **Bit Rate (kbps) Option 4**: Two spin buttons (upstream and downstream) can be used to define the values for option 4 bit rate. Possible values: upstream: 32 ... 1440 (default = 160) downstream: 32 ... 13120 (default = 1536).

Parameters/ Buttons	Description
Profile Data	**Latency**: Two option menus (upstream and downstream) shows the value: Interleaved. **Interleave Depth**: These two text fields (upstream and downstream) are enabled only if the value for **Latency** is Interleaved. Possible values: {0, 255} (default in both directions = 2). **Parity Bytes per RS**: These two option menus (upstream and downstream) allow the following values to be selected: 0, 2, 4, 6, 8, 10, 12, 14, 16 (default in both directions = 2). These option menus are enabled only if the **Type of Rate Adaption** is Explicit. **DMT Symbols per RS**: These two option menus (upstream and downstream) are enabled only if the **Type of Rate Adaption** is Explicit. Possible values: 1, 2, 4, 8, 16 (default in both directions =1). **SNR Margin (dB)**: These two option menus (upstream and downstream) allow the following values to be selected: 0 ... 31 (default in both directions = 5). **PSDM dBm/Hz**: This option menu is used to set the line power. Possible values: 60 ... 40 (default = 40).
Remove	This button can be used to remove any profile except one of the first four default profiles.
Apply	This button is used to confirm the changes. The window remains open for further use.

5.5.5.34 Modify the ADSL transmission profile (data application)

Procedure Complete the following procedure to create/modify/remove a transmission profile:

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***Profiles -> ADSL Transmission*** via the cursor menu. The *ADSL Transmission Profile* window pops up.

   This window can also be reached from the *ADSL Drop* window (cf. Chapter 5.5.5.31, page 5-109) by pressing the ***Edit*** button for transmission profile.

If you want to ...	then ...
modify a transmission profile (not possible for the four default profiles)	use the option menu **Profile** to select the desired profile, edit the parameters in the fields **Profile Data** and **Profile Data Option Rate** and click on ***Apply*** to confirm.
create a new transmission profile	use the option menu **Profile** to select NEW, use the option menu **Profile Pattern** to select an available profile as an example, define the parameters in the fields **Profile Data** and **Profile Data Option Rate** and click on ***Apply*** to confirm.
remove a transmission profile (not possible for the four default profiles)	use the option menu **Profile** to select the desired profile and press ***Remove***. NOTE: The first four default profiles can not be removed. In case one of these profiles has been selected the ***Remove*** button is disabled.

2. Click on ***Close*** to exit the window.

5.5.5.35 Threshold Profile window (data application)

This window is used to create/modify/remove threshold profiles.

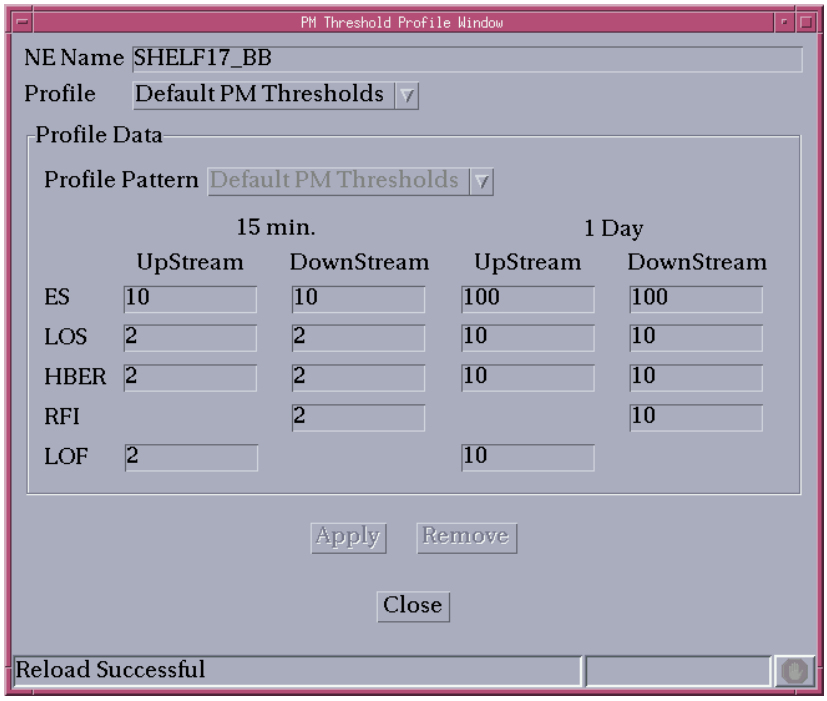


Figure 5-39 Threshold Profile window

The following table shows the view/edit options of this window.

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Profile	This option menu contains the available profiles (for editing) and NEW (for creating a new profile). Format: pmtp-{1, 128}. NOTE: The first two default profiles can neither be edited nor removed. 1-disable_all_Thresholds 2-default_PM_Thresholds.

Parameters/ Buttons	Description
Profile Data	**Profile Pattern**: This option menu is used to select a profile to get an example for a new profile. It is enabled only if NEW is selected in the option menu above. Otherwise the name of the selected profile is displayed. **ES**: Four text fields show the values for two different time periods (15 min, one day) for the two directions (upstream and downstream). Possible values: 1 ... 900 for 15 min, 1 ... 86400 for one day. **LOS (Loss of Signal)**: Four text fields show the values for two different time periods (15 min, one day) for the two directions (upstream and downstream). Possible values: 1 ... 90 for 15 min, 1 ... 8640 for one day. **HBER (High Bit Error Rate)**: Four text fields show the values for two different time periods (15 min, one day) for the two directions (upstream and downstream). Possible values: 1 ... 90 for 15 min, 1 ... 8640 for one day. **RFI (Remote Failure Indication)**: Two text fields show the values for two different time periods (15 min, one day) for the downstream direction. Possible values: 1 ... 90 for 15 min, 1 ... 8640 for one day. **LOF (Loss of Frame)**: Two text fields show the values for two different time periods (15 min, one day) for the upstream direction. Possible values: 1 ... 90 for 15 min, 1 ... 8640 for one day.
Remove	This button can be used to remove any profile except one of the first two default profiles.
Apply	This button is used to confirm the changes. The window remains open for further use. NOTE: All profiles are applied on a port.

5.5.5.36 Modify the ADSL threshold profile (data application)

Procedure

Complete the following procedure to create/modify/remove an ADSL threshold profile:

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***Profiles -> ADSL PM Thresholds*** via the cursor menu. The *ADSL Threshold Profile* window pops up (cf. Chapter 5.5.5.35, page 5-119).

   This window can also be reached from the *ADSL Drop* window (cf. Chapter 5.5.5.31, page 5-109) by pressing the ***Edit*** button for the threshold profile.

If you want to ...	then ...
modify a threshold profile (not possible for the two default profiles)	use the option menu **Profile** to select the desired profile, edit the parameters in the field **Profile Data** and click on ***Apply*** to confirm.
create a new threshold profile	use the option menu **Profile** to select NEW, use the option menu **Profile Pattern** to select an available profile as an example, define the parameters in the fields **Profile Data** and click on ***Apply*** to confirm.
remove a threshold profile (not possible for the two default profiles)	use the option menu **Profile** to select the desired profile and press ***Remove***. NOTE: The first two default profiles can not be removed. In case one of these profiles has been selected the ***Remove*** button is disabled.

2. Click on ***Close*** to exit the window.

5.5.6 Network element synchronization

5.5.6.1 Telephony agent

5.5.6.1.1 Configuration information synchronization

Overview

The possibility exists for the AEM database to become inconsistent with the information stored locally in the telephony agent (non-volatile data storage (NVDS)). A database re-synchronization capability provides a mechanism for the AEM database to be made consistent (synchronized) with the locally stored NE information.

Two NE configuration data synchronization states can be identified:

- **SYNC**: The AEM database is consistent with the locally stored telephony agent information and all the autonomous messages concerning configuration changes are enabled (database changes, LED status reports, switch reports and some events of type protection switches, lockout and loopback).
- **ASYNC**: The AEM database and the telephony agent configuration data are out of synchronization and/or configuration reports are inhibited and/or the AEM configuration message buffer is overflowing.

For more information refer to the NE documentation for the NE releases.

5.5.6.1.2 Alarm information synchronization

Overview

In general alarms can be considered independently of each other (any alarm report can be processed by the AEM independent of other alarm reports). The AEM distinguishes two possible states for alarm handling: alarms from telephony agent are enabled or they are inhibited.

Two telephony agent alarm processing states can be considered:

- **PROC**: The AEM alarm database is consistent with the current telephony agent alarms. If NE alarm and/or environment alarm reports are inhibited, the AEM database is only a snapshot of telephony agent alarm information at a certain moment in time.
- **BLOCK**: The AEM alarm database and the current telephony agent alarms are out of synchronization due to alarm buffer overflow. The AEM alarm database is only a snapshot of telephony agent alarm information at a certain moment in time.

For more information refer to the NE documentation for the NE releases.

5.5.6.1.3 Synchronization Telephony window

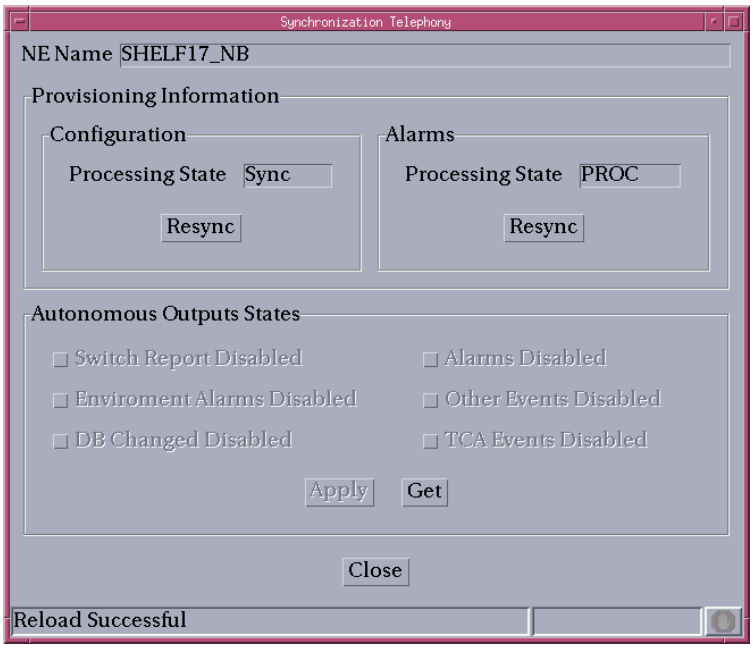


Figure 5-40 Synchronization Telephony window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Configuration	The **Processing State** represents the synchronization state between the AEM and NE. This information is automatically updated. Possible values: SYNC and ASYNC. The ***Label*** button (Resync or Sync) is used to change the synchronization state.
Alarms	The **Processing State** represents the alarm processing state between the AEM and NE. This information is automatically updated. Possible values: PROC and BLOCK. The ***Resync*** button is used to re-synchronize the alarm processing state.

Parameters/ Buttons	Description
Autonomous Output States	Check boxes show the state of the autonomous outputs (check box is marked: disabled; check box is not marked: enabled): TCA Events Disabled, Switch Reports Disabled, DB Changes Disabled, Other Events Disabled, Alarms Disabled, Environmental Alarms Disabled. This information is obtained from the NE by means of the ***Get*** button. After pressing this button the states can be changed by clicking in the boxes.
Apply	This button confirms the changes of the autonomous output states. The button is enabled only after the ***Get*** button has been pressed for the first time.
Get	This button is used to get the current values of the autonomous output states from the NE.

5.5.6.1.4 Modify the synchronization telephony parameter

Procedure

Complete the following procedure to modify the synchronization telephony parameter:

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***Synchronization -> Telephony*** via the cursor menu.
The *Synchronization Telephony* window pops up.

   This window can also be reached from the *NE Management* window (tab Telephony - cf. Chapter 5.5.2.3, page 5-40) by pressing the ***More Details...*** button.

If you want to ...	then ...
change the processing state	use the ***Label*** button in the field **Configuration**.
re-synchronize the alarm processing state	use the ***Resync*** button in the field **Alarms**.
change the states of the autonomous outputs	click on ***Get*** in the field **Autonomous Output States,** use the check boxes to define the states and press ***Apply***.
exit the window	Click on ***Close***.

5.5.6.2 Data agent

5.5.6.2.1 Configuration information synchronization

General

The data agent is able to inform the AEM of its internal configuration changes. The data agent sends traps to the AEM to inform it about these changes. Currently the data agent only generates traps when specific changes occur. Besides that, the traps are not responded to by the AEM, so the data agent does not know if the AEM has received the trap or not. As a result the AEM does not show an updated view of the data agent. To solve this problem the AEM periodically polls the data agent in order to retrieve the internal information the data agent stores in its NVDS. This process is launched in a scheduled way as well as on user demand.

Autonomous reports

Each time a configuration synchronization process is done, the AEM retrieves all the configuration information from the data agent and then updates the AEM database to reflect the current state of the configuration information in the data agent. During the process the data agent state will be moved from COMM_ESTABLISHED to COMM_ESTABLISHED_SYNCHRONIZING.

Two NE configuration data synchronization states can be identified:

- **PROCESSING**: The AEM is processing all the traps concerning configuration changes and is updating the AEM database in accordance with the traps.
- **NOT_PROCESSING**: The AEM is discarding the configuration traps coming from the data agent. In this case it is possible that the AEM database and the data agent configuration data are out of synchronization.

5.5.6.2.2 Alarm information synchronization

Overview

The data agent informs the AEM of changes in alarms the data agent has generated by using alarm traps. Alarms can be considered independent of one of another (any alarm trap can be processed by the AEM independent of other alarm traps).

The data agent can not assure that the AEM has received each of the alarm traps because the AEM does not confirm receipt of the traps. The AEM periodically polls the data agent in order to retrieve all the alarms reported by the data agent and to update the AEM database to reflect the current state of the alarms in the data agent. This process is called an alarm synchronization process. This process is launched in a scheduled way as well as on user demand. During the process the data agent state changes from COMM_ESTABLISHED to COMM_ESTABLISHED_SYNCHRONIZING.

Two data agent alarm processing states can be considered:

- **PROCESSING**: The AEM is processing all the alarm traps coming from the data agent and is updating the AEM database in accordance with the traps. The AEM alarm database is consistent with the current data agent alarms, although it is possible that a trap could have been lost.

- **NOT_PROCESSING**: The AEM is discarding the alarm traps coming from the data agent. The AEM alarm database is only a snapshot of data agent alarm information at a certain moment in time. The alarms shown in the AEM do not match the current alarms of the data agent.

5.5.6.2.3 Synchronization Data window

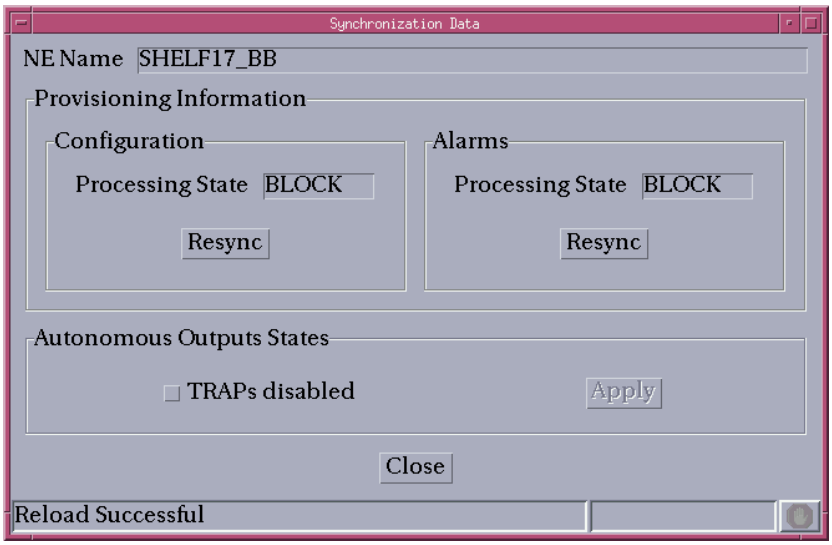


Figure 5-41 Synchronization Data window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Configuration	The **Processing State** represents the synchronization state between the AEM and NE. This information is automatically updated. Possible values: PROC and BLOCK. The ***Resync*** button is used to re-synchronize the data from the NE to the AEM database for configuration data.
Alarms	The **Processing State** represents the alarm processing state between the AEM and NE. This information is automatically updated. Possible values: PROC and BLOCK. The ***Resync*** button is used to re-synchronize the data from the NE to the AEM database for alarms.

Parameters/ Buttons	Description
Autonomous Output States	The check box **Traps Disabled** shows the state of this autonomous output (check box is marked: disabled; check box is not marked: enabled).
Apply	This button confirms the changes of the autonomous output state.

5.5.6.2.4 Modify the synchronization data parameter

Procedure

Complete the following procedure to modify the synchronization data parameter:

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***Synchronization -> Data*** via the cursor menu.
   The *Synchronization Data* window pops up.

   This window can also be reached from the *NE Management* window (tab Data - cf. Chapter 5.5.3.3, page 5-44) by pressing the ***More Details...*** button.

If you want to ...	then ...
re-synchronize the AEM database for configuration data	use the ***Resync*** button in the field **Configuration**.
re-synchronize the AEM database for alarms	use the ***Resync*** button in the field **Alarms**.
change the state of the autonomous output	use the check box **Traps Disabled** to define the state and press ***Apply***.
exit the window	Click on ***Close***.

5.5.6.3 Configuration of timing source (for telephony only)

Overview

The *AnyMedia* Access System supports four timing modes:

- **External DS1**: The line code and framing format for the external DS1 synchronization input must be provided
- **External composite office clock**
- **Free running mode:** For free-running operation, the NE derives timing from an internal crystal oscillator (XO) with an accuracy not worse than ±32 parts-per-million (ppm) over full power supply, temperature, and lifetime. The free-running mode is intended only for turn-up and failure conditions.
- **Loop timed mode**: In this mode, a selected feeder DS1 signal synchronizes an internal phase-locked loop. The NE can loop time to any feeder DS1 input as required by TR303. However, the system will only use two timing inputs (selected via provisioning) for protection reasons.

Timing Inputs

The two timing inputs are identified as **Primary** (reference source) and **Secondary** (protection source). The first DS1 feeder of the first IO_DS1 pack is the default primary input, and the first feeder of the second IO_DS1 pack is the default secondary input. The network provider can tailor the set of valid timing inputs and their priorities via provisioning. The primary and secondary reference signals can be selected from any physical feeder inputs on any two IO_DS1 packs, or from two feeder inputs on the same pack. The NE can continue to derive timing from the reference inputs if one or both of the physical inputs are switched to the protection IO_DS1 pack.

For more information refer to the network elements documentation.

Upon initialization, the NE selects the primary input as the active reference, and the secondary input as its alternate source. If the primary reference fails, the NE hardware switches to the alternate source, providing synchronization reference source protection is available (cf. Chapter 5.5.11, page 5-142).

5.5.6.4 Timing Source Control window

This window provides the operator with the facilities needed to configure the NE timing source for telephony service.

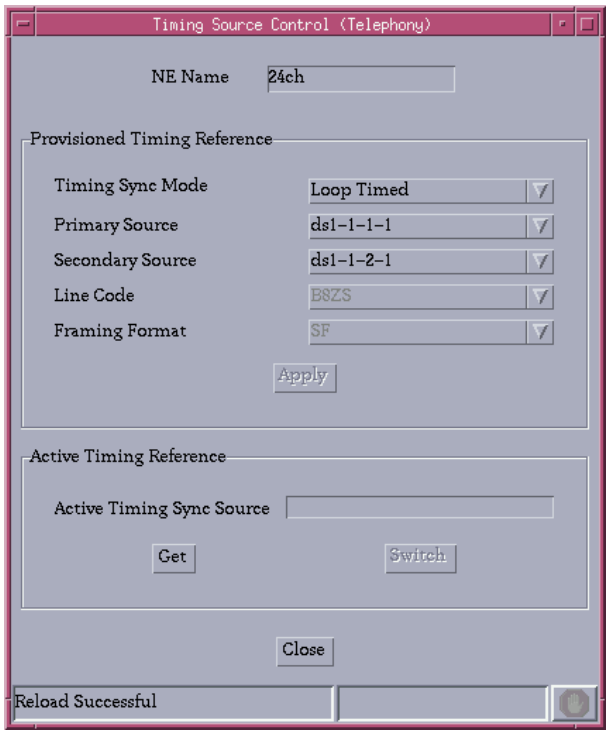


Figure 5-42 Timing Source Control window

The following table shows the view/edit options of this window.

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Provisioned Timing Reference	**Timing Sync Mode:** This option menu displays the current timing synchronization mode. Possible values: Free Running, Loop Timed, External Clock, External DS1. In case of Free Running the next two fields (**Primary Source** and **Secondary Source**) are disabled.

Parameters/ Buttons	Description
Provisioned Timing Reference (continued)	**Primary Source:** If **Timing Sync Mode** is Loop Timed, the primary source (working) and (optionally) the secondary source (standby) can be selected. Possible values: ds1-1-{1, 5}-{1, 4}. Once the source(s) of synchronization has (have) been selected, click on the ***Apply*** button. **Secondary Source:** If **Timing Sync Mode** is **Loop Timed** and **Primary Source** has been selected, the secondary source can be selected as a protection timing synchronization source if the primary source fails. Possible values: ds1-1-{1, 5}-{1, 4}. Once the protection source of synchronization has been selected, click on the ***Apply*** button. NOTE: The secondary source must be different from the primary source. Otherwise there is no protection available. **Line Code**: This option menu is available only if the **Synchronization Mode** is **External DS1**. Possible values: B8ZS, ZCS, Not Applicable (can not be selected). Once the **Line Code** has been changed, the ***Apply*** button has to pressed for confirmation. **Framing Format**: This option menu is available only if the **Synchronization Mode** is **External DS1**. Possible values: ESF, SF, Not Applicable (can not be selected). Once the **Line Code** has been changed, the ***Apply*** button has to pressed for confirmation. The ***Apply*** button is available only if: ■ **Timing Sync Mode** has been changed. ■ **Synchronization Mode** is **Loop Timed** and at least one source has been modified. NOTE: During the apply operation, the ***Get*** and ***Switch*** buttons (see below) are disabled. The whole subpane will be updated as a result of the operation.

Parameters/ Buttons	Description
Active Timing Reference	If the ***Get*** button has not been pressed the following field is empty. **Active Timing Sync Source**: Shows the active timing sync source of the NE. Possible values: Free Running, Loop Timed/PRI, Loop Timed/SEC, External DS1/Ext1, External DS1/Ext 2, External Clock/Ext1, External Clock/Ext 2. The ***Get*** button can be used to retrieve the **Active Timing Synchronization Source** and the operational state of primary and secondary sources (if applicable) from the NE. NOTE: During the get operation, the ***Apply*** and ***Switch*** buttons are disabled. The provisioned timing reference subpane will also be updated as a result of this operation. The ***Switch*** button can be used to switch between the working and standby sources of synchronization. In other words, the standby source becomes the working source and the working source becomes the standby source. This button is disabled if the **Active Timing Sync Source** is **Free Running** or the **Active Timing Sync Source** field is empty because the ***Get*** button has not been pressed yet or the operational state of the secondary source is **Not Operational**. NOTE: During the switch operation, the ***Apply*** and ***Get*** buttons are disabled. All fields will be updated as a result of this operation.

5.5.6.5 Modify the timing source

Procedure

Complete the following procedure to modify the timing source control parameter for telephony services:

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***Timing Source Control*** via the cursor menu.
   The *Timing Source Control* window pops up.

If you want to ...	then ...
change the provisioned timing synchronization mode	use the corresponding option menu in the **Provisioning Timing Reference** field and press ***Apply***.
change the provisioned primary source	use the corresponding option menu in the **Provisioning Timing Reference** field and press ***Apply***.
change the provisioned secondary source	use the corresponding option menu in the **Provisioning Timing Reference** field and press ***Apply***.
change the line code parameter	use the corresponding option menu in the **Provisioning Timing Reference** field and press ***Apply***.
change the framing format parameter	use the corresponding option menu in the **Provisioning Timing Reference** field and press ***Apply***.
get the active timing synchronization source and the source states	press the ***Get*** button in the **Active Timing Reference** field.
switch between the working and standby sources of synchronization	press the ***Get*** button in the **Active Timing Reference** field to get the active values and click on ***Switch***.
exit the window	click on ***Close***.

5.5.7 Date & Time Telephony window

This window can be used to set the date and time of the telephony agent of the managed NE. Also it is possible to retrieve the date and time of any NE.

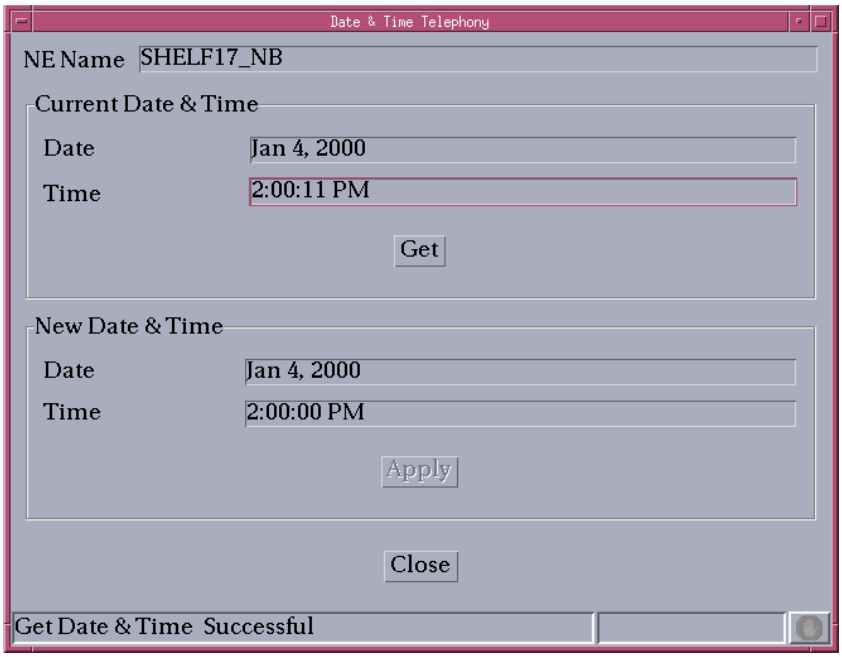


Figure 5-43 Date & Time Telephony window

The following values are possible:

- 12.00 AM to 11.59 PM for time
- Jan 1, 1980 to Dec 12, 2036.

The format follows the locale and platform conventions (e.g. for Spain the date format is day/month/year).

Procedure

Complete the following procedure to retrieve/set the date and time of the telephony agent of an NE.

Step	Procedure

1. Select the ***NE*** in the Network Element Browser and ***Date & Time -> Telephony*** via the cursor menu.
The *Date & Time Telephony* window pops up.

If you want to ...	then ...
to retrieve the current date and time data	Click on ***Get*** in the **Current Date & Time** field. The corresponding data will be shown.
to set the date and time data	use the text fields in the **New Date & Time** field to enter the corresponding values and press ***Apply***.
exit the window	click on ***Close***.

5.5.8 Date & Time Data window

This window can be used to set the date and time of the data agent of the managed NE. Also it is possible to retrieve the date and time of any NE.

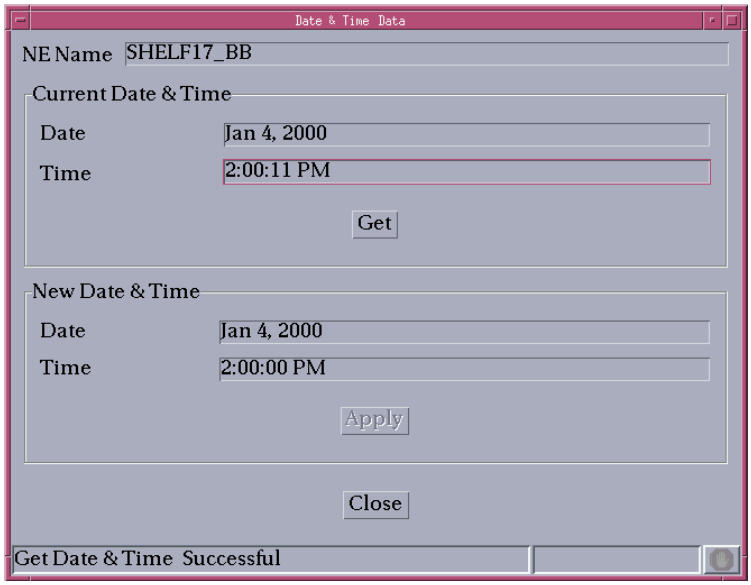


Figure 5-44 Date & Time Data window

The following values are possible:

- 12.00 AM to 11.59 PM for time
- Jan 1, 1980 to Dec 12, 2036.

The format follows the locale and platform conventions (e.g. for Spain the date format is day/month/year).

Procedure

Complete the following procedure to retrieve/set the date and time of the telephony agent of an NE.

Step	Procedure

1. Select the ***NE*** in the Network Element Browser and ***Date & Time -> Data*** via the cursor menu.
   The *Date & Time Data* window pops up.

If you want to ...	then ...
to retrieve the current date and time data	Click on ***Get*** in the **Current Date & Time** field. The corresponding data will be shown.
to set the date and time data	use the text fields in the **New Date & Time** field to enter the corresponding values and press ***Apply***.
exit the window	click on ***Close***.

5.5.8.1 NE Inventory window

This window provides inventory and summery information for both telephony and data services. Two non-editable tables display NE inventory information. The first table contains per slot data, while the second one provides summarized information per card type.

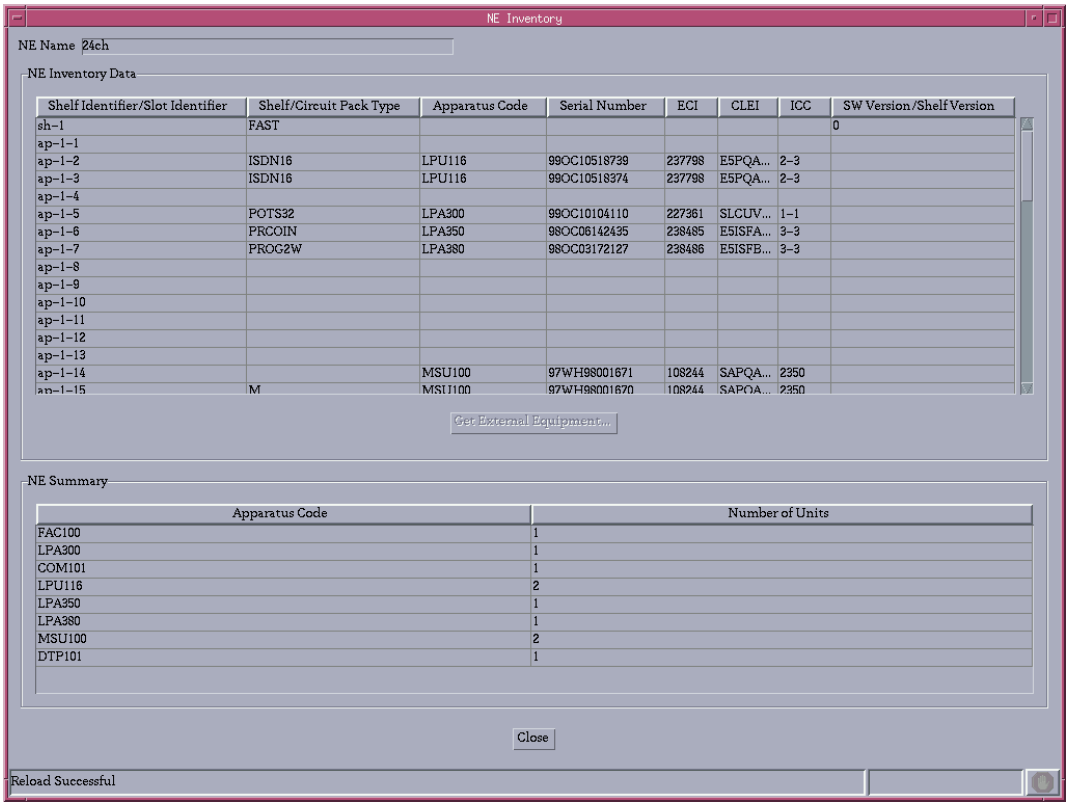


Figure 5-45 NE Inventory window

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
NE Inventory data	**Shelf Number/Slot Number**: Numeric field that identifies the position of each pack. **Shelf Type/Circuit Pack Type**: Mnemonic that identifies the shelf type and the pack type. Possible shelf types: AnyMedia AS, IAT. Possible values: COMDAC, IO_DS1, CTU, IATS, PROG2W, POTS32, PRCOIN, ISDN16_U, AFM_DS3, ADSL, MDSU, MSC, PTU, ATU. **Apparatus Code**: Identifies the specific function provided by the pack. Possible values: COM101, FAC100, DTP101, LPS100, LPA380, LPA300, LPA350, LPU116, LPA900, LPA400, LPA400B, LPA404, LPA408, LPA414, MSU100. **Serial Number**: A 12-character alphanumeric code that identifies each pack. It includes the date and place of manufacture. **ECI**: Code that corresponds to the bar-coded label on the faceplate of the pack. There is a one-to-one correspondence between CLEI and ECI codes. **CLEI**: Code assigned by Bellcore that provides information about the functionality of the pack. **ICC**: Indicates the interchangeability among packs to specify forward/backward compatibility. Format of the ICC is **m:n** where **m** is the issue number and **n** the Series Number. **SW Version/Shelf Version**: The software version is only applicable for COMDACs and AFMs. For these packs it is obtained from the NE at connection time. Internally, the AEM verifies whether the mentioned SW Version is manageable by the system. The shelf version applies to shelves and subshelves.
NE Summary	**Apparatus Code**: Displays a mnemonic that identifies the apparatus code type. Possible values: COM101, FAC100, DTP100, LPS100, LPA380, LPA300, LPA350, LPU116, LPA900, LPA400, LPA400B, LPA404, LPA408, LPA414, MSU100. **Number of Units**: Displays two numbers: the number of packs and the number of unplugged units.

5.5.8.2 Get the NE inventory data

Procedure Complete the following procedure to display the NE inventory data.

Step	Procedure
1.	Select ***NE*** in the Network Browser and ***Inventory*** via the cursor menu. The *NE Inventory* window pops up (cf. Chapter 5.5.8.1, page 5-137).
2.	Clicking on one of the column headers sorts the inventory data according to the column entries. Clicking again reverses the sort order.
3.	Click on ***Close*** to exit the window.

5.5.9 Network element working mode

Selection of the working mode via GUI is not yet implemented. It is only possible via Cut-Through interface (cf. Chapter 5.5.16, page 5-169) using TL1 commands (Set-CFG-ISDN, SW-CFG).

The system supports an active system configuration which is currently used and a standby system configuration which is set with the command "Set-CFG-ISDN". Possible values for the configurations are: POTS or POTS/ISDN Mixed.

The standby system configuration is activated with the switch configuration command "SW-CFG".

5.5.10 Simplex COMDAC protection scheme

Overview

The NE automatically sets the COMDAC protection mode (or duplex mode) when both COMDACs are plugged in. Then the alarming state of both COMDACs slots is set to **Required** and the AEM is not able to change it until one of the COMDACs is removed. When a COMDAC is removed, the AEM is then able to set that slot to **Not-Required**, so the COMDAC protection mode will be disabled (simplex).

5.5.10.1 COMDAC window

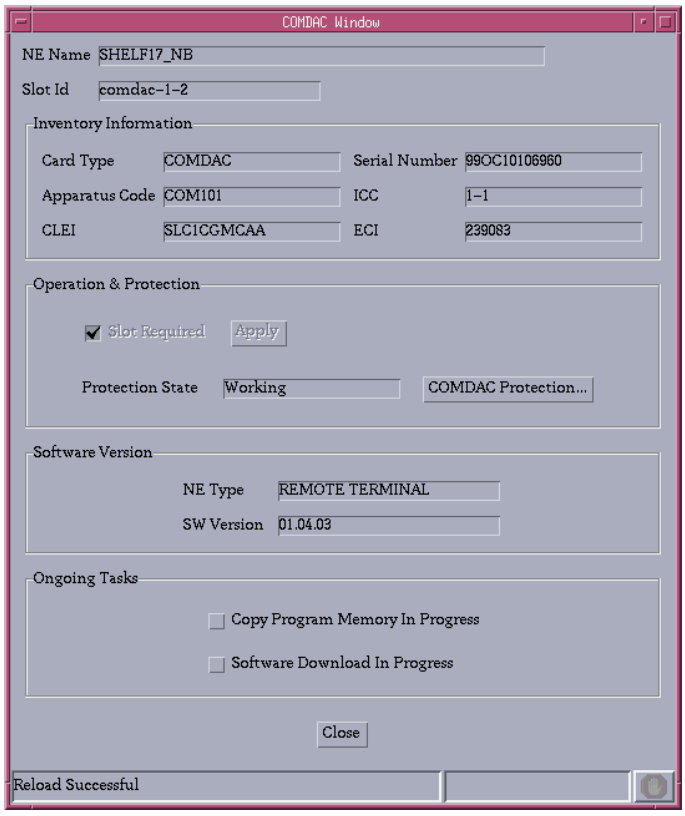


Figure 5-46 COMDAC window

This window includes hardware and software data (inventory) as well as the operational and protection state. The **Inventory Information** field contains read-only fields (cf. Chapter 5.5.5.3, page 5-59).

For configuring the protection scheme the field **Operation & Protection** is used.

Parameters/ Buttons	Description
Slot Required	This check box displays the required state of the shelf slot. This state can be changed by the user (from REQUIRED to NOT REQUIRED or vice versa) as long as the pack is **not** inserted. However, it is **not** possible to set both COMDACs to **not** required. The ***Apply*** button is available if a change in the **Slot Required** check box has been made.
Protection State	This non-editable field shows whether the selected COMDAC is working or not. Possible states are: Working (providing service) or Standby (not in service) or Not Equipped (slot is un- equipped).
COMDAC Protection...	This button provides access to the *Shelf Protection* window (COMDAC tab) to allow modification of the current protection scheme or for performing protection switching (cf. Chapter 5.5.11.1, page 5-142).

5.5.10.2 Set the COMDAC protection to simplex

Procedure

Complete the following procedure to set the COMDAC protection to simplex:

Step	Procedure
1.	Select ***NE -> Main Shelf -> COM101*** in the Network Element Browser and ***Edit*** via the cursor menu or select ***View -> Object*** via the menu bar or single click on the pack ***COMDAC*** in the *Shelf View* window. The *COMDAC* window pops up:
2.	Deselect the check box **Slot Required**.
3.	Click on ***Apply*** to confirm (the window remains on screen for further use).
4.	Click on ***COMDAC Protection...*** to open the *Shelf Protection* window (COMDAC tab) (cf. Chapter 5.5.11.1, page 5-142) or click on ***Close*** to exit the window.

5.5.11 Equipment protection switching

General

Protection switching provides an automatic recovery mechanism in the *AnyMedia* Access System when a fault is detected. NE entities that are involved in carrying service to a large number of end users are generally required to be protected with a redundant unit. However, the NE provides customer options to have none or some entities protected with redundant units. These entities can be either 1:1 or 1:N protected. For 1:1 protected entities, one of them serves as the active or primary unit and the other serves as a "protection" or standby unit. For 1:N protected entities, one entity serves as the "protection" or standby unit for all N active units. If an active unit fails, the failure is detected and service is automatically "protection switched" to the protection unit. The protection switching can also be requested on demand.

Revertive/non-revertive

Protection switching can be revertive or non-revertive. Revertive protection switching implies that the active and standby units will return to their original configuration once the failure causing the protection switch has been repaired. Non-revertive switching does not return the entities to their original configuration. With non-revertive switching, the repaired unit becomes the new standby unit.

The *AnyMedia* Access System supports the following protection features:

- COMDAC - 1:1 protection; non-revertive switch (cf. following section).
- IO_DS1 - 1:N protection ($1 \leq N \leq 5$); revertive switch (cf. Chapter 5.5.11.3, page 5-146).
- Synchronization reference source - 1:1 protection; non-revertive switch (cf. Chapter 5.5.6.3, page 5-128).

Definitions

The different kinds of switching (COMDACs and IO_DS1 packs) are defined as follows:

- **Side switching:** refers to the operation of deactivating the active core entity and activating the standby core entity.
- **Manual (normal) switch:** refers to an AEM-initiated switch command that instructs the NE to perform a switch only if the protection unit is in service and there are no known faults.
- **Forced switch:** refers to an AEM-initiated switch command that instructs the NE to perform a switch no matter what the conditions of the protection unit.
- **Inhibit switch:** refers to an AEM-initiated switch command that instructs the NE to inhibit a side switch no matter what the conditions of the active unit are.

5.5.11.1 COMDAC protection switching

Overview

The COMDAC is the core pack of the *AnyMedia* Access System. The NE supports both duplex and simplex operations, i.e., the COMDAC can be protected or unprotected. In duplex operation, the COMDAC will run in an active and standby mode.

The NE automatically sets the COMDAC protection mode when both COMDACs are plugged in. Then the alarming state of both COMDACs slots is set to **Required** and the AEM is not able to change it until one of the COMDACs is removed. When a COMDAC is removed, the AEM is then able to set that slot to **Not-Required**, so the COMDAC protection mode will be disabled (simplex).

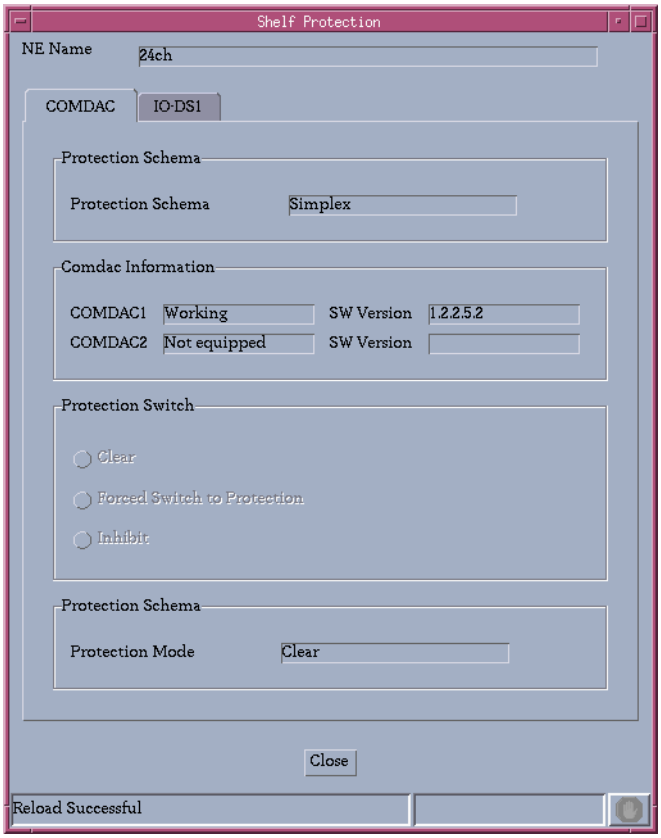


Figure 5-47 Shelf Protection window (tab COMDAC)

This window provides COMDAC protection information. It also provides the mechanisms needed to perform changes in the protection scheme as well as protection switches.

The following table shows the view/edit options of the *Shelf Protection* window (tab COMDAC):

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Protection Scheme	Represents the protection scheme used in the NE. If only one COMDAC is present in the shelf, the protection scheme is **Simplex**. If both COMDACs are present, **Duplex** is the value shown. Only in this case (duplex configuration) is the **Protection Switch** pane available (see below).
COMDAC Information	**COMDAC 1 (2):** This non-editable fields display the current COMDAC working state. The following values are possible: **Working**, **Standby** and **Not Equipped** (if there is no COMDAC inserted in the corresponding slot). **SW Version:** Shows the SW Version for the respective COMDAC.
Protection Switch	Radio buttons allow protection switching to be specified. Only the working COMDAC is inhibited. With the **Forced Switch to Protection** request the working COMDAC becomes standby and vice versa. All radio buttons are disabled if the current protection scheme is **Simplex**. The NE rejects a switch request if the **Protection Mode** is **Inhibit**. Therefore before you can switch from **Forced Switch to Protection** to **Inhibit** or vice versa you have to **Clear** the current protection. The ***Apply*** button is used confirm the changes within this field.
Protection Mode	This field displays the current protection mode which will be updated as a result of a protection switch. Possible values: Clear, Freeze.

5.5.11.2 Modify the COMDAC protection mode

Procedure Complete the following procedure to modify the protection mode for the COMDAC.

Step	Procedure

1. Select ***NE -> Main Shelf*** in the Network Element Browser and ***Protection*** via the cursor menu.
   The *Shelf Protection* window pops up (tab COMDAC):

   This window can also be reached from the *COMDAC* window (cf. Chapter 5.5.5.3, page 5-59) by clicking on the ***COMDAC Protection...*** button.

2. Use the radio buttons in field **Protection Switch** to switch the protection: **Clear** or **Forced Switch to Protection** or **Inhibit**

3. Press ***Apply*** to confirm. A *Warning* window pops up:

   `Protection switching may be service affecting.`
   `Do you want to continue?`

   If you decide to continue, the switch operation will be started. The information displayed will be updated once the switch is finished to show the current state.

The following events set off error messages:

- The NE is not equipped for the requested protection switching (i.e. the protecting slot is empty).
- The NE detects an error in the switch request (i.e. the request cannot be executed due to another activity in the AEM).
- The NE cannot execute the request as the NE software installation is in progress.

4. Click on tab IO-DS1 to change the window (see next section) or click on ***Close*** to exit the window.

5.5.11.3 IO-DS1 protection switching

Overview

The NE supports both protected and unprotected DS1 feeder interface operations, i.e., the IO-DS1 can be 1:N protected (1≤N≤5) or without a protection IO-DS1 pack. IO-DS1 protection is controlled by the active COMDAC via the protection control bus.

The AEM cannot provision DS1 pack protection. It is automatically invoked when an FAC100 pack is plugged into the IO-DS1 protection slot.

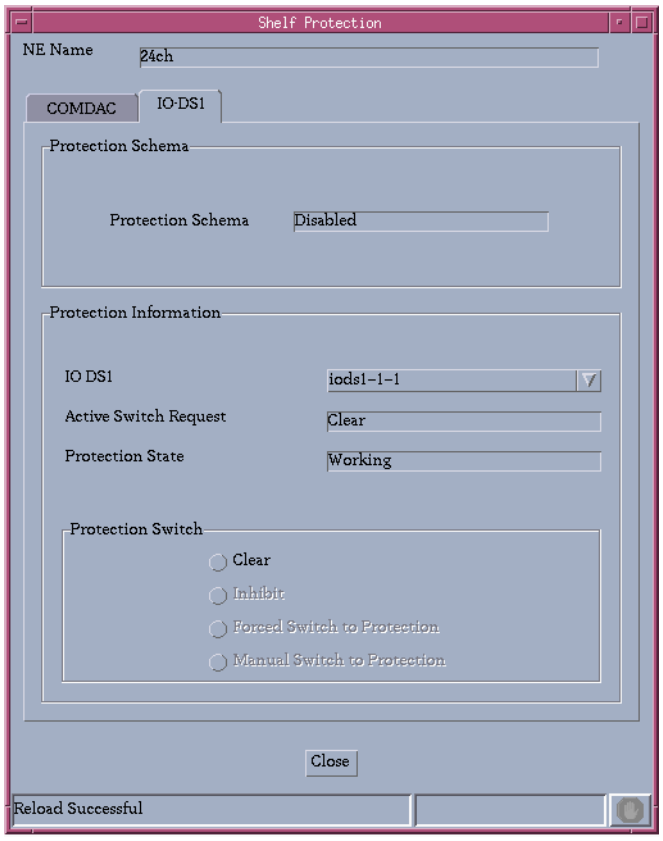


Figure 5-48 Shelf Protection window (tab IO-DS1)

This window provides IO-DS1 protection information. It also provides the mechanisms needed to perform changes in the protection scheme as well as protection switches.

Use the following table to define the IO-DS1 Protection Switch:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Protection Scheme	Displays the protection scheme used in the NE for IO-DS1. Possible values: **Enabled** (IO-DS1-p present) or **Disabled** (no IO-DS1-p). Only in the case of protection scheme **Enable** the **Protection Switch** field is available.
Protection Information	The **IO-DS1** option menu shows all IO-DS1s (present or absent) in the NE. Selecting one of these IO-DS1 enables the **Active Switch Request** and **Protection State** read-only fields (see below). The possible values for **Active Switch Request** are: ■ **Clear**: No active switch in effect. Any protection switch is allowed for the specified IO-DS1. ■ **Lockout**: If this is selected for the protection IO-DS1, access to the protection pack for the group is not allowed. When applied to a service IO-DS1, access to the protection pack is prevented. No protection switches will be done on the specified service slot until the switch is reset. Only ***Clear*** protection switch will be allowed. ■ **Forced Switch to Protection**: Applicable to IO-DS1 only. No automatic or manual switches will be done until the forced switch is reset. ■ **Automatic Switch to Protection**: A switch provoked by a failed (or missing) IO-DS1 to the protection unit. ■ **Manual Switch to Protection**: The specified service IO-DS1 has been manually switched to protection IO-DS1. The **Protection State** displays the current protection state which will be updated as a result of a **Protection Switch** (see below). Possible values are: Not Equipped, Working, Standby.

Parameters/ Buttons	Description
Protection Switch	Radio buttons allow protection switching: **Clear** or **Inhibit** or **Forced Switch to Protection** or **Manual Switch to Protection**. **Clear**: Clears any active switch request and returns traffic on the protection pack to its original service pack (provided this pack is functional). **Clear** does not affect the **Automatic Switch**. **Inhibit**: If applied on the protection pack, service returns to the protected pack and **Protection Scheme** changed to **Disable**. If applied on the protected pack, protection for this pack is disabled. If this pack was providing service through the protection pack, a protection-to-service switch will occur. This protection switch remains in effect till a protection mode is cleared. **Forced Switch to Protection**: Switches service from the service pack to the protection pack (no matter what). Not applicable to protection pack. The switch remains in this state until a **Lockout** or **Clear** is requested. **Manual Switch to Protection**: Switches service from service pack to the protection pack if the protection pack is present, functional and not carrying traffic. Not applicable to the protection pack. This protection switch remains in effect till a protection switching **Lockout**, **Forced**, or **Clear** is entered or an **Automatic Protection Switch** occurs. The ***Apply*** button is used confirm the changes within this field.

5.5.11.4 Modify the IO-DS1 protection mode

Procedure Complete the following procedure to define protection switching for IO-DS1.

Step	Procedure
1.	Select ***NE -> Main Shelf*** in the Network Element Browser and ***Protection*** via the cursor menu. The *Shelf Protection* window pops up. This window can also be reached from the *IO-DS1* window (cf. Chapter 5.5.5.1, page 5-54) by clicking on ***Protection*** button.
2.	Click on tab *IO-DS1* (this step is not necessary when coming from the *IO-DS1* window).
3.	Use the option menu **IO-DS1** to select an appropriate IO-DS1.
4.	Use the radio buttons in the field **Protection Switch** to select the desired protection: **Clear** or **Inhibit** or **Forced Switch to Protection** or **Manual Switch to Protection.**
5.	Press ***Apply*** to confirm. The *Warning* window pops up: **`Protection switching may be service affecting. Do you want to continue?`** If you decide to continue, the switch operation will be started. The information displayed will be updated once the switch is finished to show the current state.

The following events set off error messages:

- The NE is not equipped for the requested protection switching (i.e. the protecting slot is empty).
- The NE detects an error in the switch request (i.e. the request cannot be executed due to another activity in the AEM).
- The NE cannot execute the request as the NE software installation is in progress.
- The forced switch is denied as the protecting slot is locked out.
- The manual switch is denied either because there is a higher protection switch active (Inhibit, Forced) or because an automatic switch is already protecting that protected slot.

5.5.11.5 Alarm configuration

Configuring of the alarm severities is only possible via the cut-through interface (cf. Chapter 5.5.16, page 5-169). The corresponding TL1 commands are available on-line using the GSI help on *AnyMedia* Access System.

5.5.12 Network element software upgrade

This function is subdivided into two parts: NE software download (for telephony and data agents) and program copy (only for telephony agent - COMDAC).

5.5.12.1 Network element software download (telephony agent)

Overview

There are two software versions, the one in the active COMDAC and the new one to be downloaded (must be placed in $ANYMEDIA/CM/nefiles/NVPS). It is assumed that the user has a copy of the software currently running in the active COMDAC.

The software download procedure is as follows:

- start download
- load software into the standby COMDAC.

Assumptions

For the following description it is assumed that the NE is already connected and the NE hardware platform is prepared to receive and work with the new program version.

5.5.12.2 COMDAC Software Download window

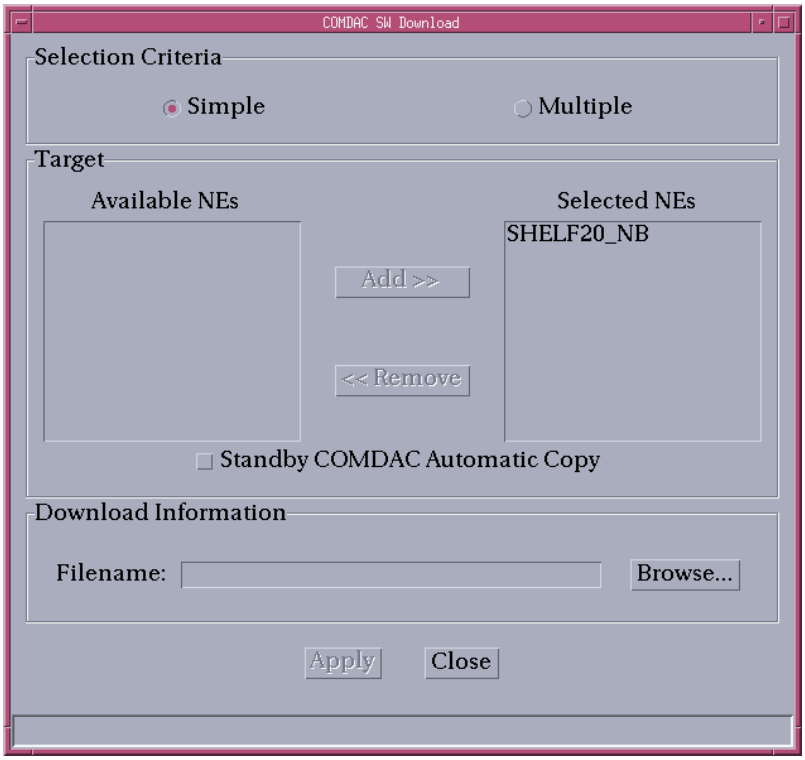


Figure 5-49 COMDAC Software Download window

This window provides the functionality needed to download files to an NE or to a set of NEs with telephony agent. The following table shows the parameters of this window:

Parameters/ Buttons	Description
Selection Criteria	Two radio buttons are used to define the target of the download file. **Single**: The target is the pre-selected NE, only its name is in the **Selected NEs** list (see below). The **Add** and **Remove** buttons are disabled. **Multiple**: The **Available NEs** list shows all existing NEs. By means of the ***Add*** button the NEs can be moved to the S**elected NEs** list.

Parameters/ Buttons	Description
Target	The **Available NEs** list shows all existing NEs (with telephony agents) sorted alphabetically. The **Selected NEs** list shows all NEs to which the download is being done. The ***Add >>*** button can be used to move the selected NE from the **Available NEs** list to the **Selected NEs** list. The ***<< Remove*** button can be used to remove domains from the **Selected NEs** list. (The ***Add >>*** button and the ***<< Remove*** button are available only after having selected an NE from the corresponding list.) The check box **Standby Comdac Automatic Copy** can be used to initiate the automatic copying of the software from the working COMDAC to the standby COMDAC after the software download is completed successfully.
Download Information	**Filename:** This text field shows the name of the file which will be downloaded. The ***Browse...*** button opens the *File Browser* window where the file can be selected.
Apply	This button is used to start the software download.

5.5.12.3 Software download to telephony agent

Procedure Complete the following procedure to start the software download:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Software Download -> Telephony*** via the cursor menu. The *COMDAC Software Download* window pops up.
2.	Use the radio buttons in the field **Selection Criteria** to define single or multiple download. For single download proceed with step 4, for multiple download proceed with step 3.
3.	Use the ***Add >>*** button in the field **Target** to move the desired NEs to the **Available NEs** list.
4.	Set the check box **Standby Comdac Automatic Copy** if you want to copy automatically the software from the working COMDAC to the standby COMDAC after the software download is completed successfully (the copy can also be done later by means of the *COMDAC Program Copy* window - cf. Chapter 5.5.13, page 5-158).

5. Click on the ***Browse...*** button in the **Download Information** field to open the *File Browser* window (cf. Chapter 5.5.15.5, page 5-168) to select the file (example of the file structure: NE Files/NVPS/COMDAC R1...) that should be downloaded.

6. Click on ***OK*** to confirm. The chosen file name appears in the field **Filename** in the *COMDAC Software Download* window

7. Click on ***Apply*** to initiate the download process. A *Warning* window pops up (the *Software Download* window remains on the screen after the download is finished):

   SW Download is service affecting and the command can not be cancelled while its execution. Continue anyway?

   If you decide to continue the AEM starts the download procedure. The *COMDAC SW Download In Progress* window pops up:

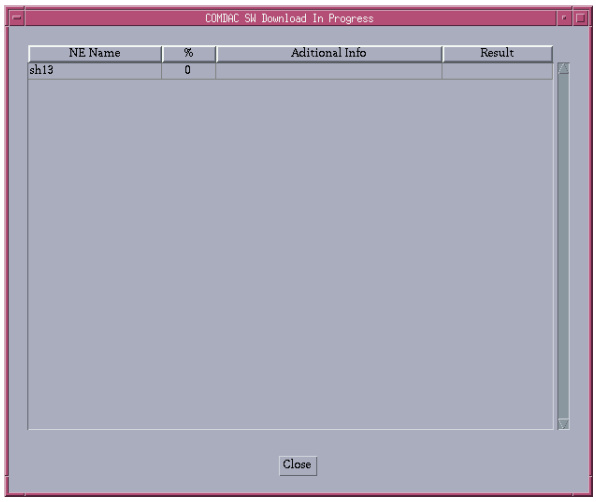


Figure 5-50 COMDAC SW Download In Progress window

This window provides the following information: NE Name, percent of the software download (FTP) operation executed, feedback (Additional information such as write-software, FTP, copy-memory) and the result of the software download operation (successful or unsuccessful).
This information is shown for each NE for which the software download is being performed.

NOTE:
The software download process cannot be cancelled.

8. After the download process is finished click on ***Close*** to exit the *COMDAC Software Download* window.
This button is disabled while the SW download process is being executed.

NOTE:
The following errors will stop the download process:

- NE does not match login and password. The AEM returns operation failed to the AEM.
- NE detects that the side switch to the standby COMDAC is not possible (e.g. 2nd COMDAC not present) and rejects the SW download operation.
- If the download of the data fails an alarm is issued and manual intervention will be required to:
  - restart the download procedure from the beginning, or
  - write from the active COMDAC to the standby COMDAC to back out the partial load (duplex configuration) - see Chapter 5.5.13, page 5-158.
- If the software program is not installed successfully on the standby COMDAC:

  In duplex configuration, an alarm will be sent to the AEM and manual intervention will be required to:
  - restart the download procedure from the beginning, or
  - write from the active COMDAC to the standby COMDAC to remove the downloaded copy - see Chapter 5.5.13, page 5-158.
- The TCP connection between AEM and NE is lost.

5.5.12.4 AFM Software Download window

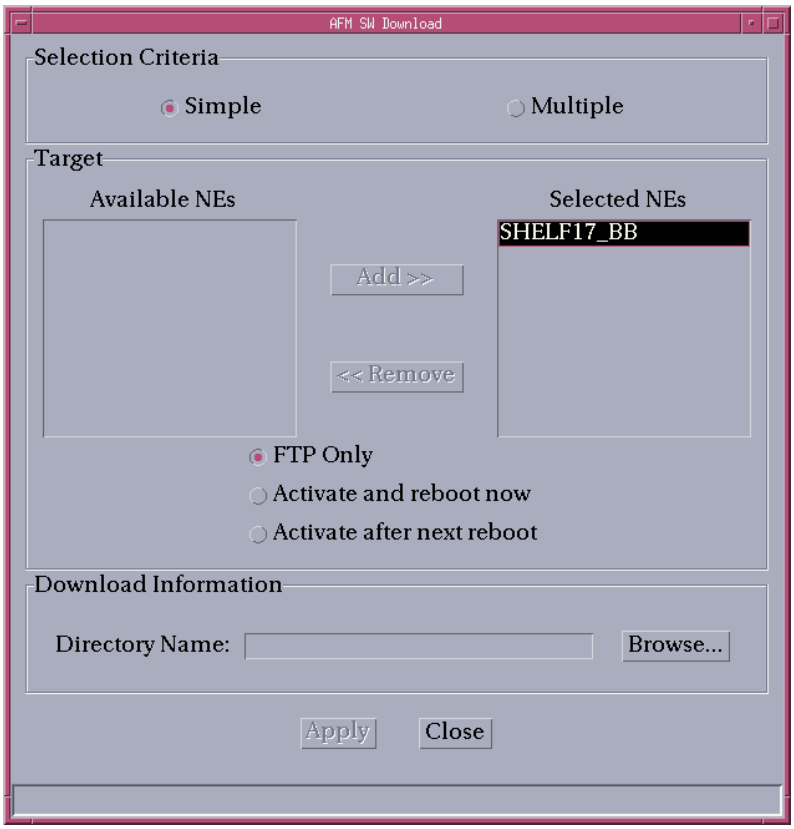


Figure 5-51 AFM Software Download window

This window provides the functionality needed to download files to an NE or to a set of NEs with data agent. The following table shows the parameters of this window:

Parameters/ Buttons	Description
Selection Criteria	Two radio buttons are used to define the target of the download file. **Single**: The target is the pre-selected NE, only its name is in the **Selected NEs** list (see below). The **Add** and **Remove** buttons are disabled. **Multiple**: The **Available NEs** list shows all existing NEs. By means of the ***Add*** button the NEs can be moved to the **Selected NEs** list.

Parameters/ Buttons	Description
Target	The **Available NEs** list shows all existing NEs (with data agents) sorted alphabetically. The **Selected NEs** list shows all NEs to which the download is being done. The ***Add >>*** button can be used to move the selected NE from the **Available NEs** list to the **Selected NEs** list. The ***<< Remove*** button can be used to remove domains from the **Selected NEs** list. (The ***Add >>*** button and the ***<< Remove*** button are available only after having selected an NE from the corresponding list.) Three radio buttons can be used to define the download procedure: ■ **FTP only** (only download) ■ **Activate after next reboot** (download and automatic activation after the next reboot) ■ **Activate and reboot now** (download and automatic activation immediately).
Download Information	**Directory name:** This text field shows the name of the file which will be downloaded. The ***Browse...*** button opens the *File Browser* window where the directory can be selected.
Apply	This button is used to start the software download.

5.5.12.5 Software download to data agent

Procedure Complete the following procedure to start the software download:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Software Download -> Data*** via the cursor menu. The *AFM Software Download* window pops up.
2.	Use the radio buttons in the field **Selection Criteria** to define single or multiple download. For single download proceed with step 4, for multiple download proceed with step 3.
3.	Use the ***Add >>*** button in the field **Target** to move the desired NEs to the **Available NEs** list.

4. Use the radio buttons **FTP only**, **Activate after next reboot** or **Activate and reboot now** in the **Target** field to define the desired download manner. (Please note that the copying and activation can also be done later by means of the *AFM Program Copy & Validation* window - cf. Chapter 5.5.14, page 5-160.)

5. Click on the ***Browse...*** button in the **Download Information** field to open the *File Browser* window (cf. Chapter 5.5.15.5, page 5-168) to select the directory (example of the file structure: NE Files/NVPS/AFM R1...) that should be downloaded.

6. Click on ***OK*** to confirm. The chosen file name appears in the field **Directory name** in the *AFM Software Download* window.

7. Click on ***Apply*** to initiate the download process. A *Warning* window pops up (the *Software Download* window remains on the screen after the download is finished):

   SW Download is service affecting and the command can not be cancelled while its execution. Continue anyway?

   If you decide to continue the AEM starts the download process. An *AFM SW Download In Progress* window pops up:

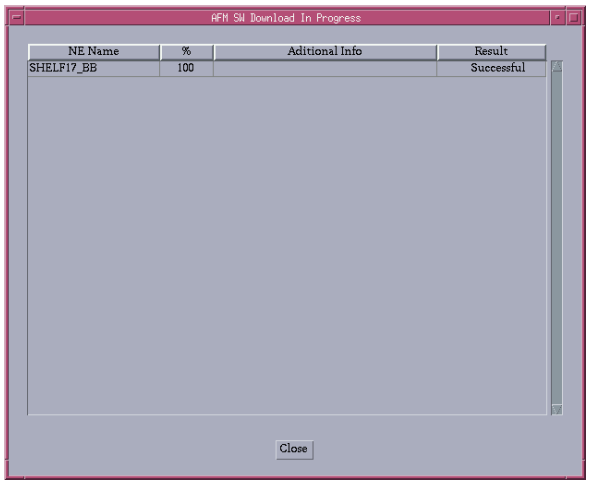


Figure 5-52 AFM SW Download In Progress window

This window provides the following information: NE Name, percent of the software download (FTP) operation executed, feedback (additional Information such as write-software, FTP, copy-memory) and the result of the software download operation (successful or unsuccessful).
This information is shown for each NE to the software download is being performed.

NOTE:
The software download process cannot be cancelled.

8. After the download process is finished click on ***Close*** to exit the *AFM Software Download* window.
This button is disabled while the SW download process is being executed.

5.5.13 COMDAC program copy

Overview

This function is used to copy a newly loaded software from the currently active COMDAC to the standby COMDAC. During normal operation both COMDACs should have the same software version. Therefore the software copying should always be the next step after software download except when software copying is started automatically after software download (cf. Chapter 5.5.12.2, page 5-151).

Duplex configuration

For the following description it is assumed that the NE is configured in duplex configuration.

Procedure

Complete the following procedure to copy the new software from the active COMDAC to the standby COMDAC:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Program Copy -> Telephony*** via cursor menu. The *COMDAC Program Copy* window pops up:

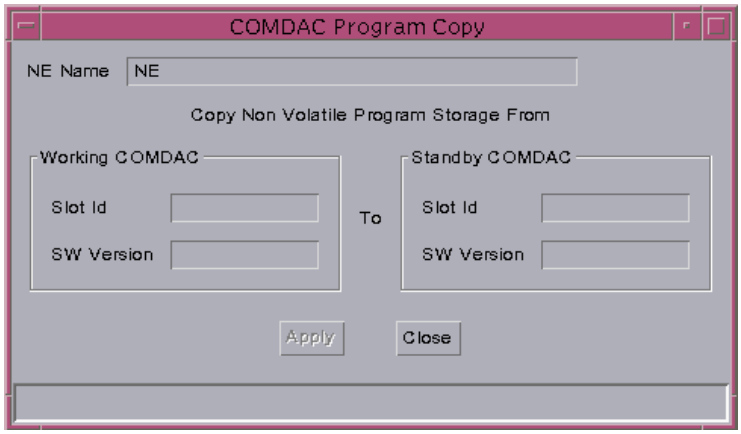


Figure 5-53 COMDAC Program Copy window

This is a dialogue window requesting information from the user to continue. There are two fields (titled **Working COMDAC** and **Standby COMDAC**) showing the corresponding slot number and software versions used in each of the COMDACs.

— **Slot_Id**

Identifies which COMDAC is where (e.g. Working COMDAC in slot 1 and Standby COMDAC in slot 2).

— **SW Version**

Obtained from the NE. The SW version of the working COMDAC will be taken as the NE SW version.

2. Press ***Apply*** to start the software copying. An *In Progress* window pops up:

`Program Copy from COMDAC 1 to COMDAC 2 on <NE NAME> in Progress`

After finishing the copying process successfully the *In Progress* window disappears.

3. Press ***Close*** to exit the *COMDAC Program Copy* window.

5.5.14 AFM program copy and validation

Overview

This function is used to exchange the newly loaded software with the currently active version in the flash memory and reboot the AFM to activate the new software. This should always be the next step after software download except when the copying and validation is started automatically after software download (cf. Chapter 5.5.12.4, page 5-155).

Procedure

Complete the following procedure to exchange the new software with the currently active version:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Program Copy -> Data*** via cursor menu. The *AFM Program Copy & Validation* window pops up:

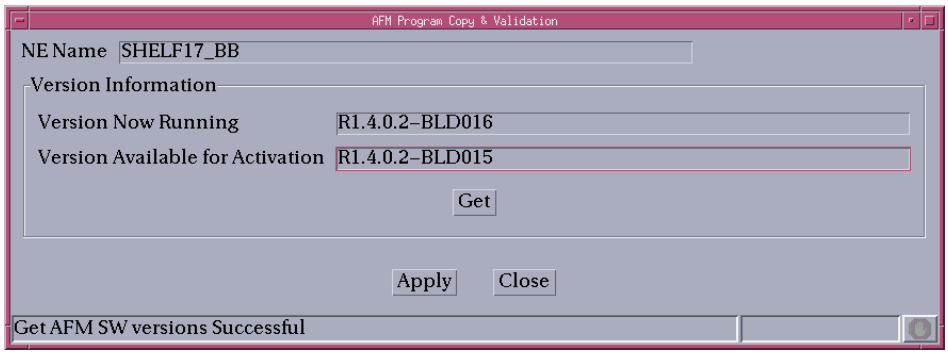


Figure 5-54 AFM Program Copy & Validation window

The fields **Version Now Running** (currently running NE software) and **Version Available for Activation** (standby software, downloaded via FTP) display the corresponding versions.

2. Click on ***Get*** to retrieve the current version information.

3. Click on ***Apply*** to initiate the validation of the new software, the exchange of the software versions and the reboot to make the changes valid. A *Warning* window pops up:

   AFM Program Copy & Validation is service affecting and the command can not be cancelled while its execution. Continue anyway?

   After confirmation an In Progress window pops up:

   AFM Program Copy and Validation from active version to standby version on <NE NAME> in Progress

After finishing the process successfully the *In Progress* window disappears.

4. Press ***Close*** to exit the *AFM Program Copy & Validation* window.

5.5.15 Nonvolatile data storage (NVDS)

Overview

This section describes the backup and restore processes. The backup procedure uploads the data from the NE's COMDAC (or AFM) to the AEM. The restore function deals with the downloading of a previous backup NVDS from the AEM to the NE. Both functions apply to both simplex and duplex NE configurations.

Backup/restore data

For database backup and restoration the AEM is able to create/maintain a copy of provisioning data from the active COMDAC or AFM (NVDS). When a loss of data occurs in the NE (due to factors such as human error, power failure or hardware and software failures), the restoration features enable the AEM to restore a previous backup to one NE.

Backup media

The AEM is able to store the backup copy in diverse storage media that can include HDD (hard disk drive), tapes, removable disk cartridges and any other available mass-storage medium.

FTP

For database backup and restoration operations the AEM uses an FTP (file transfer protocol) connection within the NE. FTP allows the AEM to overwrite or copy information residing on the NE.

The AEM can open only one FTP session per NE at a time where the AEM will support the client role of the FTP session, and the *AnyMedia* Access System will play the server part.

Failing backup/restore

The backup and restore processes will fail if the time period during which the connection is lost exceeds the time-out defined in the AEM or the NE time-out; otherwise the process will continue after the connection is recovered.

5.5.15.1 Data backup (telephony agent)

Procedure Complete the following procedure to initiate data backup for a telephony agent:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Backups -> Telephony*** via the cursor menu. The *COMDAC NVDS Backup* window pops up:

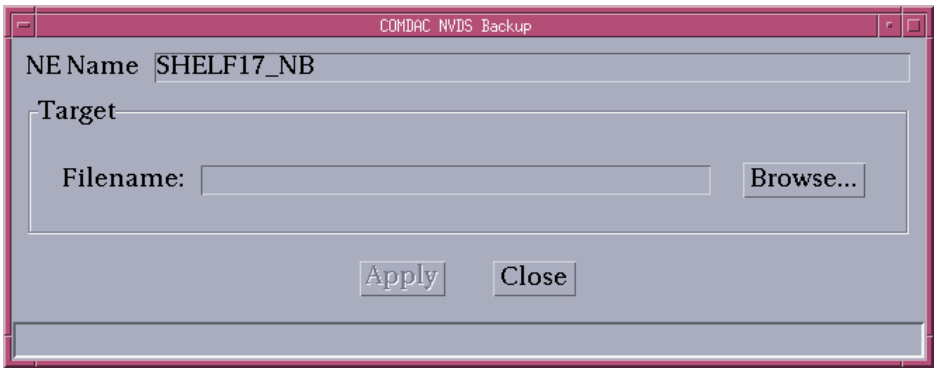


Figure 5-55 COMDAC NVDS Backup window

2. Click on the ***Browse...*** button to open the *File Browser* window (cf. Chapter 5.5.15.5, page 5-168) to select/create the directory (example of the file structure: NE Files/NVDS/<NE_Name>/COMDAC/R1...) and the file name of the backup file.

NOTE:
Do not insert any blank in the backup file name. Such a file cannot be restored.

3. Click on ***OK*** to confirm. The chosen file name appears in the field **Filename** in the *COMDAC NVDS Backup* window.

4. Click on ***Apply*** (this command button is available only after having selected the file name) to start the backup. An *In Progress* window pops up:

   `NVDS Backup on <NE NAME> in progress.`

   After finishing the backup process successfully the *In Progress* window disappears.

5. Press ***Close*** to exit the *COMDAC NVDS Backup* window.

NOTE:
Pressing the ***Close*** button during the backup execution will cancel the backup operation.

5.5.15.2 Data backup (data agent)

Procedure Complete the following procedure to initiate data backup for a data agent:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Backups -> Data*** via the cursor menu. The *AFM NVDS Backup* window pops up:

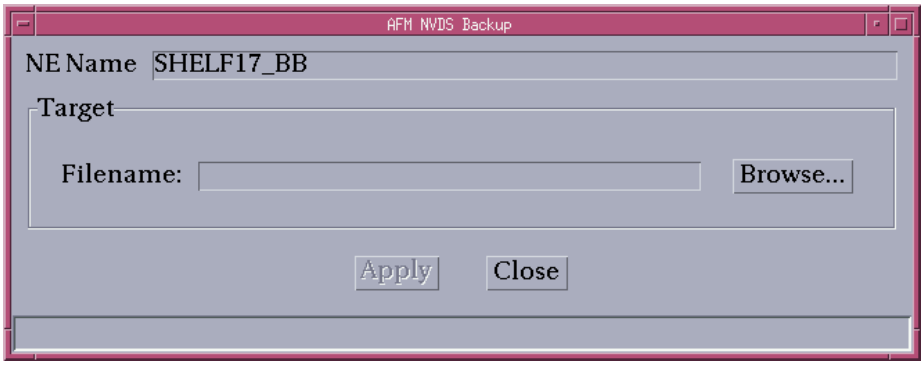


Figure 5-56 AFM NVDS Backup window

2. Click on the ***Browse...*** button to open the *File Browser* window (cf. Chapter 5.5.15.5, page 5-168) to select/create the directory (example of the file structure: NE Files/NVDS/<NE_Name>/AFM) and the file name of the backup file.

NOTE:
Do not insert any blank in the backup file name. Such a file cannot be restored.

3. Click on ***OK*** to confirm. The chosen file name appears in the field **Filename** in the *AFM NVDS Backup* window.

4. Click on ***Apply*** (this command button is available only after having selected the file name) to start the backup. An *In Progress* window pops up:

   `NVDS Backup on <NE NAME> in progress.`

After finishing the backup process successfully the *In Progress* window disappears.

5. Press ***Close*** to exit the *AFM NVDS Backup* window.

NOTE:
Pressing the ***Close*** button during the backup execution will cancel the backup operation.

5.5.15.3 Data restore (telephony agent)

Procedure Complete the following procedure to initiate data restore from a telephony agent:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Restore -> Telephony*** via cursor menu. The *COMDAC NVDS Restore* window pops up:

Figure 5-57 COMDAC NVDS Restore window

2. Click on the ***Browse...*** button to open the *File Browser* window (cf. Chapter 5.5.15.5, page 5-168) to select the directory (example of the file structure: NE Files/NVDS/<NE_Name>/COMDAC/R1...) and file name of the restore file.

3. Click on ***OK*** to confirm. The chosen file name appears in the field **Filename** in the *COMDAC NVDS Restore* window.

4. Click on ***Apply*** (this command button is available only after having selected the file name) to start the restore. A *Warning* window pops up:

. **NVDS Restore may be service affecting and the command can not be cancelled while the execution. Continue anyway?**

5. Press ***Yes*** to confirm this message. An *In Progress* window pops up:

   NVDS restore on <NE Name> in progress

   After finishing the backup process successfully the *In Progress* window disappears.

6. Press ***Close*** to exit the *COMDAC Restore* window.

NOTE:
When an NVDS restore process is started, all AEM variables are set to their initial values to provoke a FULL synchronization. The NE synchronization state goes to ASYNC.
The association between AEM and NE is lost and recovered. The FULL synchronization is launched for that NE.
Finally, the NE is connected and perfectly synchronized.

5.5.15.4 Data restore (data agent)

Procedure Complete the following procedure to initiate data restore from a data agent:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Restore -> Data*** via cursor menu. The *AFM NVDS Restore* window pops up:

Figure 5-58 AFM NVDS Restore window

2. Click on the ***Browse...*** button to open the *File Browser* window (cf. Chapter 5.5.15.5, page 5-168) to select the directory (example of the file structure: NE Files/NVDS/<NE_Name>/AFM) an the file name of the restore file.

3. Click on ***OK*** to confirm. The chosen file name appears in the field **Filename** in the *AFM NVDS Restore* window.

4. Click on ***Apply*** (this command button is available only after having selected the file name) to start the restore. A *Warning* window pops up:

. **`NVDS Restore may be service affecting and the command can not be cancelled while the execution. Continue anyway?`**

5. Press ***Yes*** to confirm this message. An *In Progress* window pops up:

`NVDS restore on <NE Name> in progress`

After finishing the backup process successfully the *In Progress* window disappears.

6. Press ***Close*** to exit the *AFM Restore* window.

5.5.15.5 File Browser window

This window is composed of a list where all files and/or subdirectories are shown included in the selected directory. The File Browser can be launched from

- the *Software Download* windows
- the *Backup* windows
- the *Restore* windows and
- the *Groups & NEs* window.

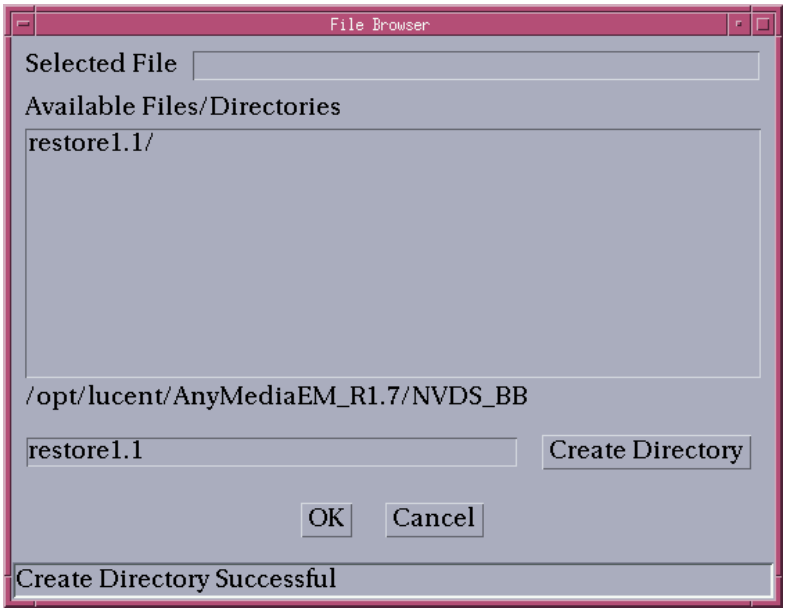


Figure 5-59 File Browser window

The following table shows the parameter of this window:

Parameters/ Buttons	Description
Selected File	This text field displays the selected file. The field is editable only if the file browser has been accessed from a backup window. In this case the **Available Files/Directories** list is used to select the corresponding path (directory/subdirectories).

Parameters/ Buttons	Description
Available Files/Directories	This list box contains all the existing files or subdirectories contained in the selected directory. If a file is selected this file name will be displayed in the **Selected File** field.
Label	This field displays the current relative path selected in the list above. A different path is shown depending on the window the File Browser has been accessed from.
Create Directory	This button can be used to create a directory. The directory name can be specified by use of the text field on the right-hand side.
OK	This button is used to confirm the selection of the file or directory. If the File Browser has been accessed from a *Backup* window and a new file name has been entered, this file will be created in the selected directory.

5.5.16 TL1 cut-through (telephony agent)

Overview

The AEM provides the user with a command line to a TL1 (transaction language 1) session with any NE. Using this command line, the user can type any TL1 command, send these commands to a selected NE and get the responses to the requests as well as all the autonomous outputs sent by the NE.

TL1 used for the provisioning, maintenance and administration of the *AnyMedia* Access System is an ASCII-based command language.

This cut-through interface is used by remote AEM craft personal when the GUI does not support certain TL1 commands. The AEM will provide the independence between the cut-through interface and the GUI interface.

To open a cut-through interface with an NE the operator must provide the connection information (Login and Password) defined in the NE Name Information window (cf. Chapter 5.5.1, page 5-35).

When the AEM receives the request to open a cut-through session, it opens a telnet connection with the selected NE, to avoid conflicts with the current AEM GUI session. Then the operator will manage the cut-through session through the use of TL1 commands.

Cut-through / GUI independence

The AEM GUI behaviour (but not necessarily the performance) is not affected by any simultaneous cut-through connection running on the platform.

The operator using the AEM GUI does not used to know about any cut-through session running on the AEM platform. The performance of the system could be affected by the load of the hardware, but the behaviour of the GUI is the same in both cases.

Procedure

Complete the following procedure to start a TL1 session:

1. Select ***NE*** in Network Element Browser.

2. Select ***Cut-through -> Telephony*** via the menu bar to start a TL1 session. The *Cut through* window pops up.

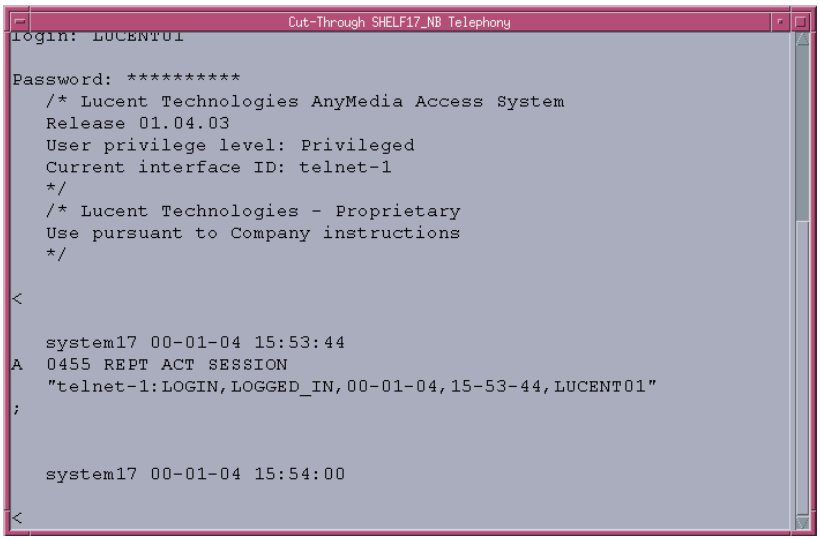


Figure 5-60 Cut-Through window

3. Enter the **Login** and **Password** as defined in the *NE Management* window (cf. Figure 5-15, page 5-37).

Now you are able to enter the appropriate TL1 commands.

The TL1 descriptions (syntax, formats, parameters, ...) are available on-line using the GSI help on *AnyMedia* Access System.

5.5.17 Fiber Reach

Overview

The AEM provides an interface to a integrated transport management - sub network controller (ITM-SNC) session with any DDM-2000 Fiber Reach component on the transport network that interacts with the *AnyMedia* Access System. Using this software package, the user can retrieve alarms and configuration related to the transport sub-network.

The Fiber Reach interface is used by remote login when the operator wants to locate a failure or defect that is shown on the access system that have been originated in the transport network. The GUI interface and the ITM-SNC are totally independent from each other because they are operating on different NEs.

To open a remote session with an ITM-SNC the operator must provide the connection information (Login and Password) as for the login into an ITM-SNC session (for more information, cf. ITM-SNC User Manual).

Fiber Reach / GUI independence

The AEM GUI behavior (but not necessarily the performance) is not affected by any simultaneous Fiber Reach connection running on the platform.

The operator using the AEM GUI does not need to know about any Fiber Reach sessions running on the AEM platform. The performance of the system could be affected by the load of the hardware, but the behavior of the GUI is the same in both cases.

5.5.17.1 Start a Fiber Reach session

Complete the following procedure to start a Fiber Reach session:

1. Type **`fr`** in a terminal window, which you can start via the workspace manager (cf. Chapter 3.3.8, page 3-11) and press **`Return`**. The following message is shown:

   ```
   List of available hosts:
   1.-mahp1
   2.-mascusa14

   a) Add Host     d) Del Host     q) Quit
   Enter Selection:
   ```

2. Enter the host number where the ITM-SNC is installed from the list of available hosts or enter **a** for include a new one (cf. Chapter 5.5.17.2, page 5-172).

3. Enter the **Login** and **Password** defined on the ITM-SNC documentation.

Now you are able to use the ITM-SNC application.

5.5.17.2 Add a host

Complete the following procedure to add a host for Fiber Reach:

1. Type **fr** in a terminal window, which you can start via the workspace manager (cf. Chapter 3.3.8, page 3-11) and press **Return.** The following message is shown:

   ```
   List of available hosts:

   a) Add Host     d) Del Host     q) Quit
   Enter Selection:
   ```

2. Enter *a* that identifies the option Add Host and press **Return**. The next message pops up:

   ```
   Host to be added:
   ```

NOTE:
The host is reachable by Fiber Reach if the user name and the IP address of the AEM user is contained in the rlogin file.

3. Enter the name of the host where the ITM-SNC is installed.

4. Enter **q** and press **Return** to exit.

5.5.17.3 Delete a host

Complete the following procedure to delete a host for Fiber Reach:

1. Type **fr** in a terminal window, which you can start via the workspace manager (cf. Chapter 3.3.8, page 3-11) and press **Return.** The following message is shown:

   ```
   List of available hosts:
   1.-mahp1
   2.-mascusa14

   a) Add Host     d) Del Host     q) Quit
   Enter Selection:
   ```

2. Enter *d* that identifies the option Del Host and press **Return**. The next message pops up:

   ```
   Host to be removed:
   ```

3. Enter the number that identifies the host on the list.

Select **q** and press **Return** to exit.

5.5.18 Delete network element

If the NE should not be managed by the AEM any longer, it shall be deleted from the AEM database.

Procedure Complete the following procedure to delete an NE.

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Remove*** via the cursor menu or select ***File -> Remove*** via the menu bar. A *Warning* window pops up: **`You are about to delete <NE Name>. Do you want to continue?`** If you select **No**, the deletion of the NE is rejected. Otherwise, the NE will be deleted.

NOTE:
When an NE is deleted from the AEM database, it is still fully functional. The TL1 and TCP/IP links between the AEM and the NE will be closed and the management access via the AEM is finished until the NE is created and connected again.

Service provisioning

6

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Service provisioning

6

6.1 Introduction

This chapter describes the service provisioning possibilities of the *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7. It addresses the following topics:

- Screen navigation
- Service provisioning (telephony)
- Service provisioning (data).

6.2 Service provisioning (telephony)

Overview

Service provisioning (deactivation) means the setting of those parameters needed to provide service to (or disconnect service from) an individual end customer. For distribution ports, such parameters include those that specify a T0 cross-connection between a logical DS0 on a VRT/VB (virtual remote terminal / virtual bank) and an end-customer's physical port, and the parameters which can be set on the port. Service provisioning is typically initiated by a service order, although unprovisioning is sometimes also needed for maintenance purposes or for re-configuration of an existing network, e.g., load balancing.

Supported VRTs/VBs

Figure 6-1, page 6-2 shows a conceptual diagram of the cross-connections between the physical (DS1 and subscriber) ports of the *AnyMedia* Access System and the VRTs/VBs. The *AnyMedia* Access System supports

- up to one TR-303 VRT
- up to 20 TR-08 VRTs
- and up to 20 INA VBs

in any combination not exceeding 20 feeder DS1s (4 DS1 feeders for each IO-DS1).

T1 cross-connections

T1 cross-connections provide feeder bandwidth to VRTs and VBs. A maximum of 20 T1 cross-connections can be created; they are limited by the maximum number of DS1 feeder ports in the system.

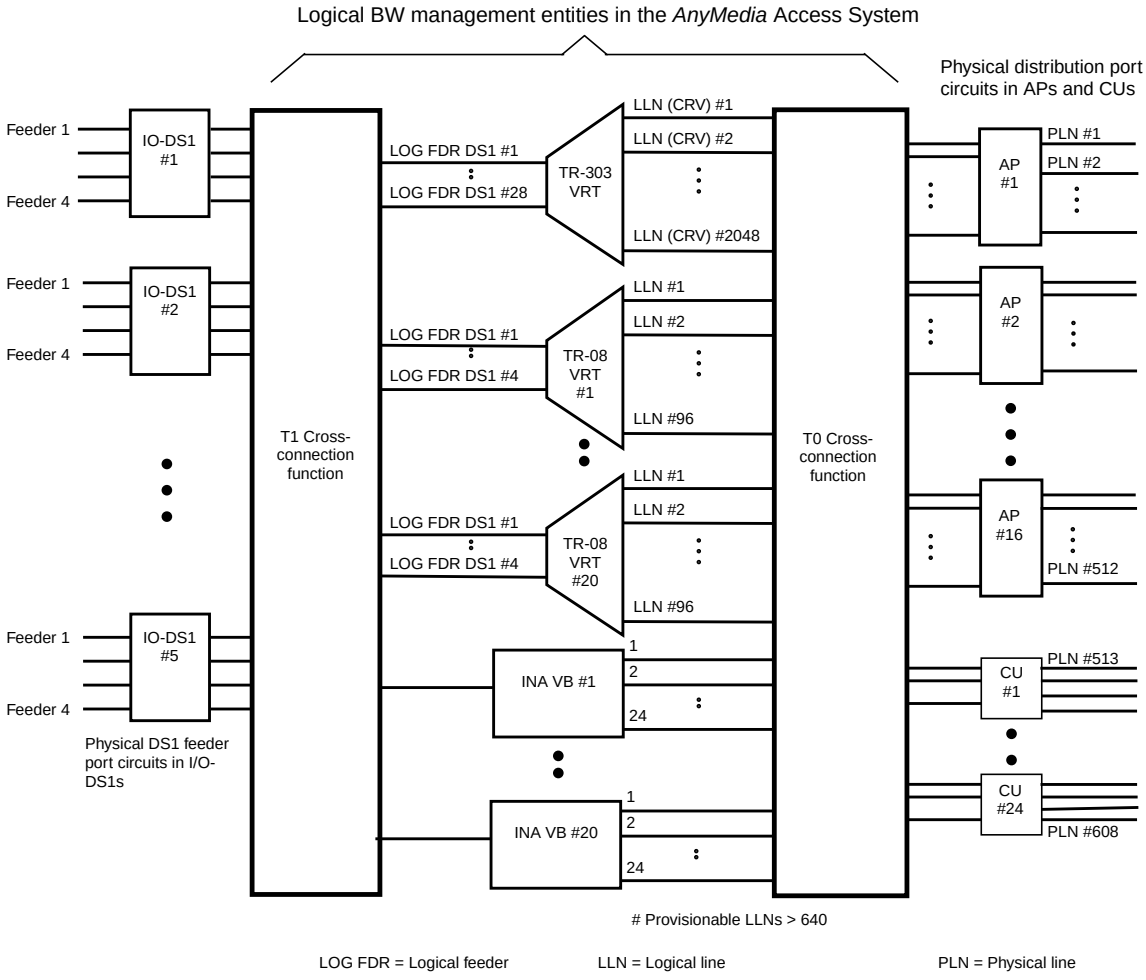

Figure 6-1 Cross-connection diagram

T0 cross-connections

T0 cross-connections link a distribution port (a tip/ring pair) to a VRT or VB. A maximum of 609 T0 cross-connections (608 + one for the ROC) can be created in the *AnyMedia* Access System; they are limited by the maximum number of distribution ports in the system.

DS0 data

Each logical DS0 may contain provisioning data for its associated physical subscriber line. In addition, the DS0 data for locally switched services and ISDN lines

on the TR-303 VRT can be administered by the LDS through its EOC. When a physical subscriber line is T0 cross-connected to a VRT or VB, it takes over the characteristics defined by the DS0 data for the corresponding logical port (e.g., if a line from a PROG2W LPA380 AP is cross-connected to a logical port that is provisioned for POTS service, it provides a loop-start interface; if the line is then cross-connected to a logical port that is provisioned for foreign exchange (FX) service, it provides a ground-start interface).

Logical configuration

The NE logical configuration supports a combined maximum of 672 DS0 records among all VRTs and VBs. This number exceeds the total number of physical subscriber lines that the system supports.

Physical ports

The physical ports of the *AnyMedia* Access System provide feeder DS1 connections and subscriber tip/ring pairs. The physical ports are associated with IO-DS1 FAC100 packs and APs respectively.

Service provisioning

Service provisioning for voice frequency (VF) services requires that feeder and distribution ports be associated with a VRT/VB through T1 and T0 cross-connections, respectively, and that T0 provisioning data be entered for the desired service. Finally, the required physical packs must be equipped. Figure 6-2 represents the composite provisioning data required to bring a single subscriber line into service on a TR-08 VRT.

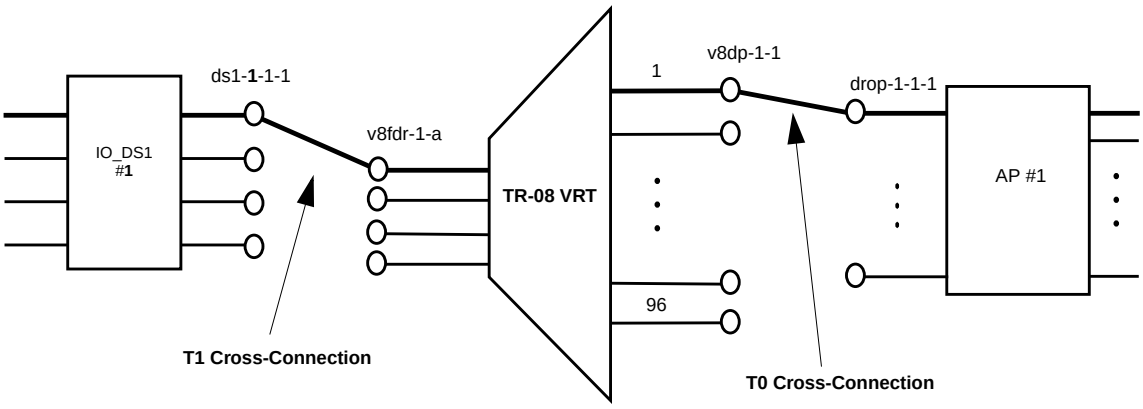

Figure 6-2 Provisioning data for a TR-08 POTS subscriber line

Port assignment

As mentioned above the *AnyMedia* Access System may contain 1 TR-303 VRT and/or up to 20 TR-08 VRTs and INA VBs in any combination, subject to the limit imposed by the 20 available DS1 network interfaces. A physical distribution port may be assigned to only 1 logical line on 1 VRT or INA VB; similarly, a logical line can be assigned to only 1 physical distribution port.

TR-303 VRT

The single TR-303 VRT can support any number of physical lines up to the full 608-line maximum capacity of the *AnyMedia* Access System. The logical lines of the TR-303 VRT are identified by call reference values (CRVs), which may be any

of 672 integer values from 1 to 2048. A physical distribution port in the system can be assigned to any CRV of the TR-303 VRT.

The TR-303 VRT includes full access concentration between its logical line DS0s and available time slots on the feeder DS1s (24 time slots) associated with the VRT (full access means that if there is an available feeder time slot it is possible to assign a logical line DS0 to that time slot). For time slot management the TR303 VRT supports the following process:

Dynamic time slot assignment: a time slot assignment made via the timeslot management channel (TMC) for locally-switched application. This time slot assignment/deassignment is done on a per call basis under control of the LDS.

Semi-permanent time slot assignment: a time slot assignment made via the embedded operation channel (EOC) for providing a dedicated voice/data path. This time slot assignment/deassignment is done on a per service order basis. The LDS will manage the semi-permanent cross-connections in the TR-303 VRT.

TR-08 VRT

A TR-08 VRT supports up to 96 physical lines. The logical lines are identified by logical line numbers (LLNs), which are integer values ranging from 1 to 96. A physical distribution port may be assigned to any LLN within any TR-08 VRT. There is a fixed mapping between TR-08 LLN number and the TR-08 feeder DS0 used for the circuit. This allows the FAST to make the cross-connection between the TR-08 physical port and the feeder DS0 without explicitly provisioning the feeder DS0 to be used.

INA VB

An INA VB supports a maximum of 24 physical lines. The logical lines are numbered from 1 to 24. A physical distribution port may be assigned to any logical line within any INA VB.

There is a fixed mapping between the INA LLN number and the INA feeder DS0 used for the circuit. This allows the *AnyMedia* Access System to make the cross-connection between the INA physical port and the feeder DS0 without explicitly provisioning the feeder DS0 to be used. The access identifier (AID) of an INA logical line and its INA feeder DS0 are the same.

For more information refer to the network elements documentation.

Screen navigation

Figure 6-3, page 6-5 shows an overview of the screen navigation for service provisioning.

The arrows represent the order in which the windows can be opened.

Example

To open the *Logical DS0* list

- select ***NE*** in the Network Element Browser and ***List -> Logical DS0*** via the cursor menu.

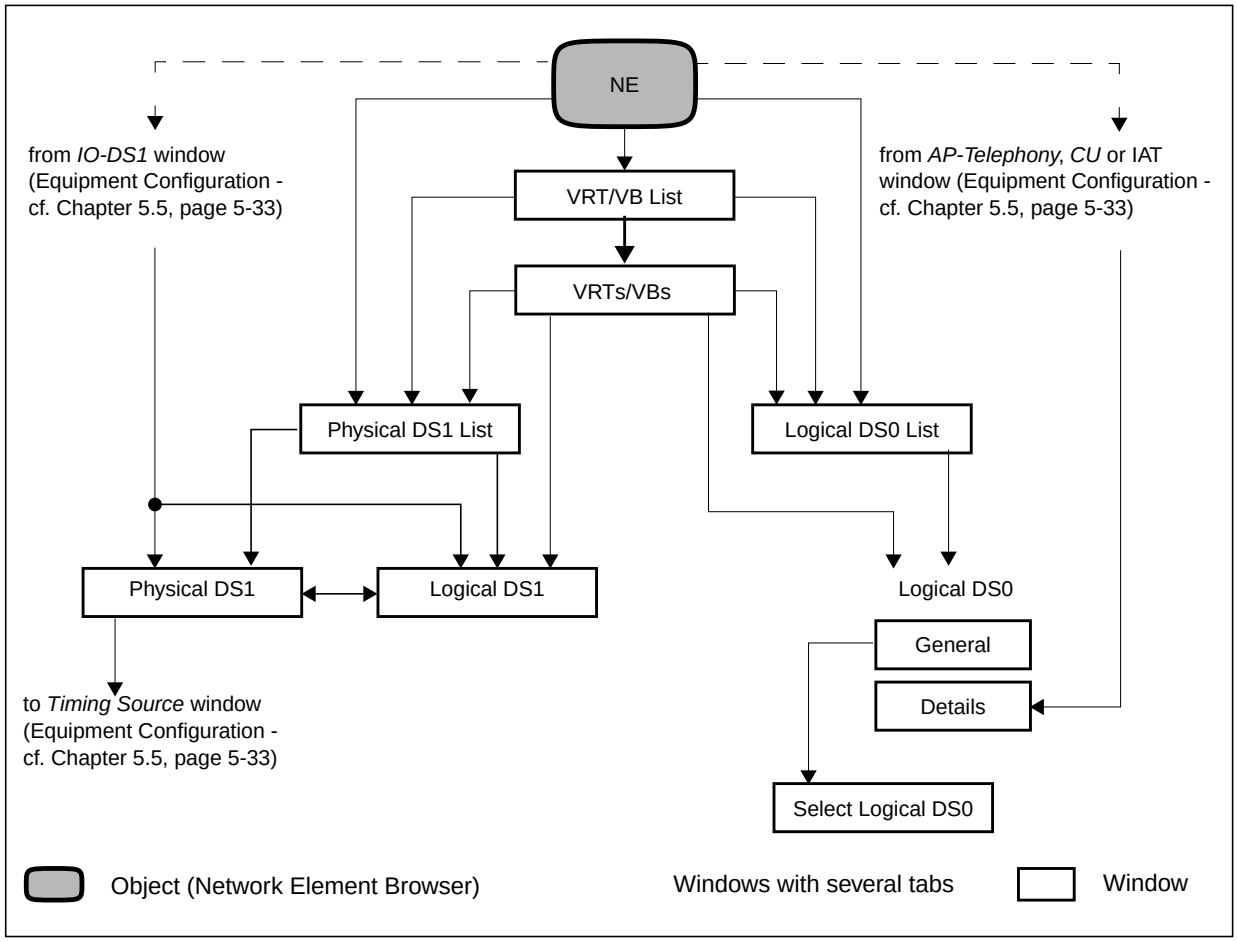

Figure 6-3 Screen navigation for service provisioning (telephony)

6.2.1 Network interface

6.2.1.1 VRT/VB List window

This window displays the VRT/VB id list based on a selection criterion. It provides access to the VRT/VBs windows for addition or deletion of logical DS0 and/or logical DS1 and for modifying the VRT/VB specific parameters (if applicable).

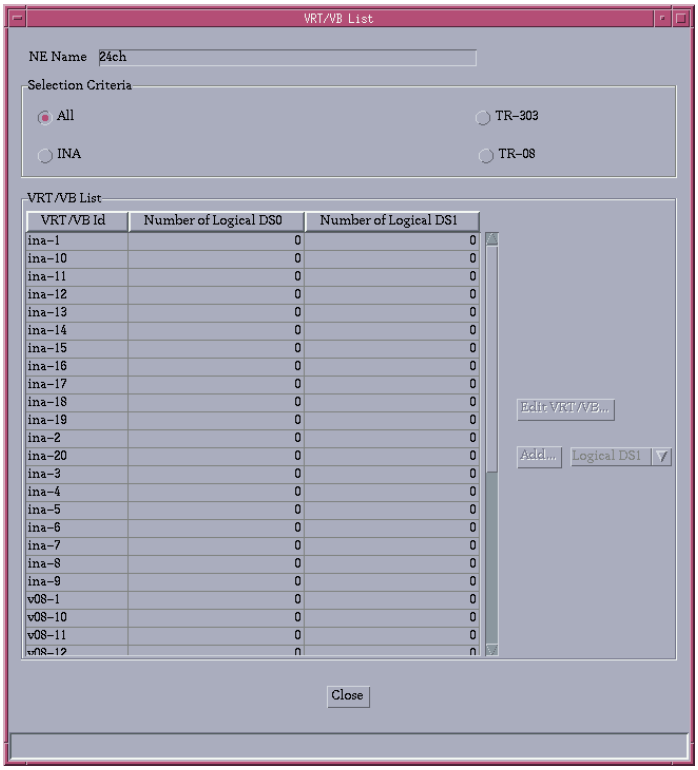

Figure 6-4 VRT/VB List window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Selection Criterion	Radio buttons are used to define the list that will be displayed in the field **VRT/VB List**. Selected criterion is **All**: The list will display all VRT/VB ids. Selected criterion is **TR-303** or **TR-08** or **INA**: In these cases, only the VRT/VB ids of the selected type will be displayed.

Parameters/ Buttons	Description
VRT/VB List	This field contains a table displaying VRT/VB information. This information is presented in a 3-column table. The table is sorted by **VRT/VB Id**. A scroll bar allows navigation through the table. Rows in the table can be selected to edit, VRT/VBs and to add logical DS0 and logical DS1 through the use of the corresponding buttons described below. ■ **VRT/VB Id**: Lists all ids of the VRT/VB defined by the selection criterion. ■ **Number of Logical DS0**: Informs about the number of already defined logical DS0 for this VRT. ■ **Number of Logical DS1**: Informs about the number of already defined logical DS1 for this VRT. The ***Edit VRT/VB...*** button provides access to one of the *VRT/VB* windows (TR303 or TR08 or INA). Depending on the right-hand side option menu provides the ***Add*** button access to different windows: *Logical DS1* window, *Logical DS0* window.

6.2.1.2 Use the VRT/VB List

Procedure Complete the following procedure to use the VRT/VB list.

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***List -> VRT/VB*** via the menu bar. The *VRT/VB List* window pops up.
2.	Use the radio buttons to choose a desired **VRT/VB** type.

If you want to ...	then ...
edit the selected VRT/VB	click on ***Edit VRT/VB...***. The corresponding VRT/VB window pops up (cf. Chapter 6.2.1.3, page 6-8 - Chapter 6.2.1.7, page 6-15)
add a logical DS1	select the desired VRT/VB id in the list an click on ***Add Logical DS1***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26).
add a logical DS0	select the desired VRT/VB id in the list an click on ***Add Logical DS0***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35).
close the window	Click on ***Close***.

6.2.1.3 VRT-TR303 window

This window provides access to the lists of physical DS1s and logical DS0s, as well as allows addition of logical DS1s and logical DS0s to the selected VRT-TR303. It also displays (on demand) the VRT operational state. This window shows also the VFDE state (enable or disable) and datalink protection information.

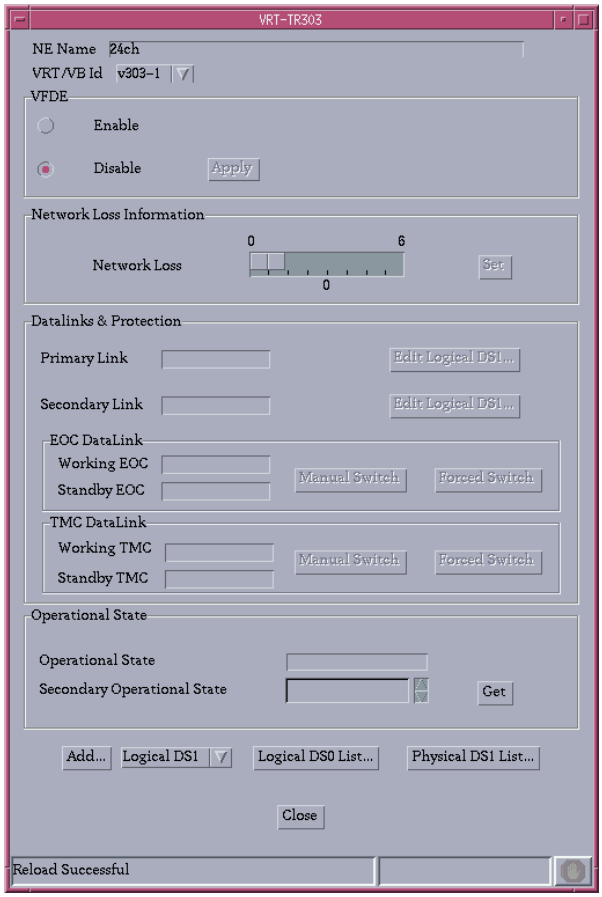

Figure 6-5 VRT-TR303 window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
VRT/VB id	This option menu lists all VRT/VB ids of the selected type.

Parameters/ Buttons	Description
VFDE	Two radio buttons (**Enable / Disable**) are used to modify the VFDE status by clicking on ***Apply***. The ***Apply*** button is available only if the VFDE status has been modified.
Network Loss Information	The **Network Loss** slider can be used to define the network loss value. Possible values: 0 ... 6. The ***Set*** button is used to set the network loss value.
Datalinks & Protection	**Primary Link, Secondary Link**: Displays the logical DS1 id of the primary and secondary link. These entries are available if logical DS1 id is present. Possible values are: v3fdr-{1}-{1, 28}. The ***Edit Logical DS1...*** buttons provide access to the *Logical DS1* window to change the timing reference. **EOC Datalink:** ■ **Working / Standby EOC**: Displays the logical DS1 id used by the working/standby EOC (embedded operations channel). Possible values are: v3fdr-{1}-{1, 28}. ■ ***Manual Switch***: This button performs a manual switch between working and standby EOCs. It is available only if both working and standby EOCs are present and the standby path is not out of service. ■ ***Forced Switch***: This button performs a forced switch between working and standby EOCs. It is available only if both working and standby EOCs are present and regardless of the service condition of the standby path. **TMC Datalink:** ■ **Working / Standby TMC**: Displays the Logical DS1 id used by the working/standby TMC (Timeslot Management Channel). Possible values: v3fdr-{1}-{1, 28}. ■ ***Manual Switch***: This button performs a manual switch between working and standby TMCs. It is available only if both working and standby TMCs are present. ■ ***Forced Switch:*** This button performs a forced switch between working and standby TMCs. It is available only if both working and standby TMCs are present.

Parameters/ Buttons	Description
Operational State	The **Operational State** shows the VRT/VB service state obtained from the NE through the use of the ***Get*** button. Possible values: Enabled, Disabled. The **Secondary Operational State** shows the secondary service state obtained from the NE. The ***Get*** button retrieves the VRT/VB service state.
Command Buttons	Three buttons provide access to other windows: Depending on the right-hand side option menu provides the ***Add*** button access to different windows: *Logical DS1* window, *Logical DS0* window. ***Physical DS1 List...***: This button provides access to the *Physical DS1 List* window. ***Logical DS0 List...***: This button provides access to the *Logical DS0 List* window.

6.2.1.4 Modify the VRT-TR303

The *VRT-TR303* window can be reached only from the *VRT/VB List* window via ***Edit VRT/VB...*** button.

Procedure Complete the following procedure to modify the VRT-TR303.

Step	Procedure

1. Use the option menu **VRT/VB id** to choose a desired VRT/VB type.

If you want to...	then ...
edit the VFDE state	use the radio buttons **Enable / Disable** and click on ***Apply***. NOTE: Switching to disable will cause a warning message that this action can be service affecting. **`VFDE disabling of a TR303 may be service affecting. Do you want to continue?`** If you decide to continue, the AEM will send an allowed-VFDE message (in case of enable) or an inhibit-VFDE message (in case of disable) to the NE. The following *In Progress* message will be shown in the status bar: **`Disable/Enable VFDE launched`**
change the timing reference for primary and/or secondary link	click on the corresponding ***Edit Logical DS1...***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26).
change the switch mode of EOC and/or TMC	use the corresponding buttons ***Manual Switch /Forced Switch***.
change the network loss value	use the slider **Network Loss** and click on *Set*.
get the current service states of the VRT/VB	click on *Get* in the **Operational State** field.
add a logical DS1	use the option menu at the right-hand side of the ***Add*** button to choose Logical DS1 and click on ***Add***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26)

If you want to...	then ...
add a logical DS0	use the option menu at the right-hand side of the ***Add*** button to choose Logical DS0 and click on ***Add***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.1, page 6-31)
open the *Physical DS1 List* window	click on ***Physical DS1 List...***. The *Physical DS1 List* window pops up (cf. Chapter 6.2.2, page 6-17).
open the *Logical DS0 List* window	click on ***Logical DS0 List...***. The *Logical DS0 List* window pops up (cf. Chapter 6.2.4.1, page 6-31).
close the window	Click on ***Close***.

6.2.1.5 VRT-TR08 window

This window provides access to the lists of physical DS1s and logical DS0s, as well as allows addition of logical DS1s and logical DS0s to the selected VRT-TR08.

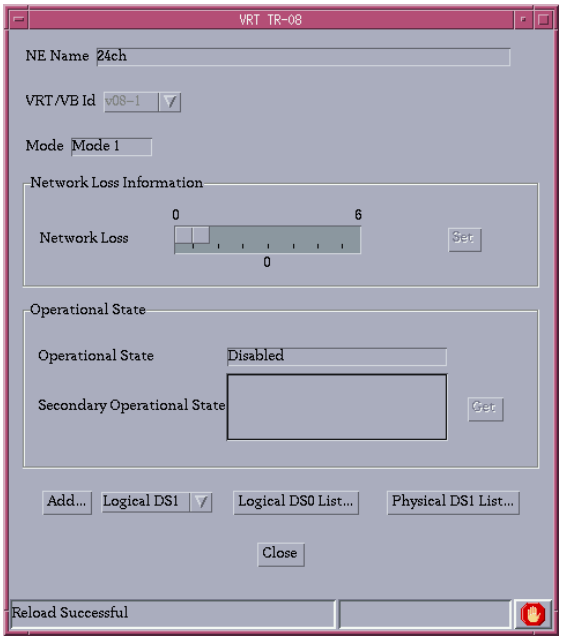

Figure 6-6 VRT - TR08 window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
VRT/VB id	This option menu lists all VRT/VB ids of the selected type.
Mode	This text field shows the version of the TR-08.
Network Loss Information	The **Network Loss** slider can be used to define the network loss value. Possible values: 0 ... 6. The ***Set*** button is used to set the network loss value.
Operational State	The **Operational State** shows the VRT/VB service state obtained from the NE through the use of the ***Get*** button. Possible values: Enabled, Disabled. The **Secondary Operational State** shows the secondary service state obtained from the NE. The ***Get*** button retrieves the VRT/VB service state.

Parameters/ Buttons	Description
Command Buttons	Three buttons provide access to other windows: Depending on the right-hand side option menu provides the ***Add*** button access to different windows: *Logical DS1* window, *Logical DS0* window. ***Physical DS1 List...***: This button provides access to the *Physical DS1 List* window. ***Logical DS0 List...***: This button provides access to the *Logical DS0 List* window.

6.2.1.6 Modify the VRT-TR08

The *VRT-TR08* window can be reached only from the *VRT/VB List* window via ***Edit VRT/VB...*** button.

Procedure

Complete the following procedure to modify the VRT-TR08.

Step	Procedure

1. Use the option menu **VRT/VB id** to choose a desired VRT/VB type.

If you want to ...	then ...
change the network loss value	use the slider **Network Loss** and click on ***Set***.
get the current service states of the VRT/VB	click on ***Get*** in the **Operational State** field.
add a logical DS1	use the option menu at the right-hand side of the ***Add*** button to choose Logical DS1 and click on ***Add***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26)
add a logical DS0	use the option menu at the right-hand side of the ***Add*** button to choose Logical DS0 and click on ***Add***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35)
open the *Physical DS1 List* window	click on ***Physical DS1 List...***. The *Physical DS1 List* window pops up (cf. Chapter 6.2.2, page 6-17).
open the *Logical DS0 List* window	click on ***Logical DS0 List...***. The *Logical DS0 List* window pops up (cf. Chapter 6.2.4.1, page 6-31).
close the window	Click on ***Close***.

6.2.1.7 VB-INA window

This window provides access to the lists of physical DS1s and logical DS0s, as well as allows addition of logical DS1s and logical DS0s to the selected VB-INA.

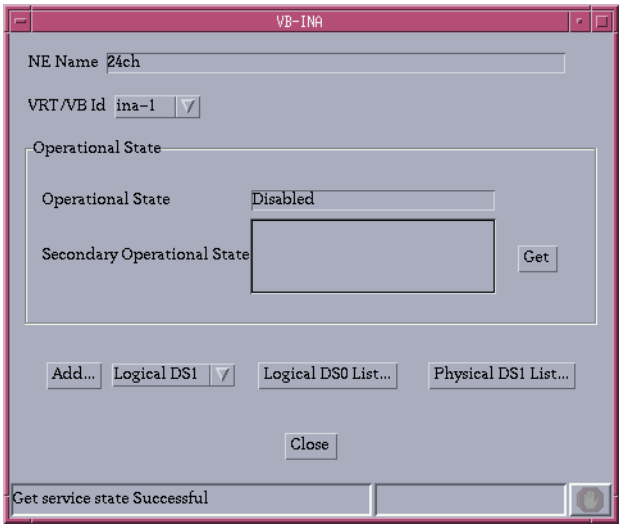

Figure 6-7 VB-INA window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
VRT/VB id	This option menu lists all VRT/VB ids of the selected type.
Operational State	The **Operational State** shows the VRT/VB service state obtained from the NE through the use of the ***Get*** button. Possible values: Enabled, Disabled. The **Secondary Operational State** shows the secondary service state obtained from the NE. The ***Get*** button retrieves the VRT/VB service state.
Command Buttons	Three buttons provide access to other windows: Depending on the right-hand side option menu provides the ***Add*** button access to different windows: *Logical DS1* window, *Logical DS0* window. ***Physical DS1 List...***: This button provides access to the *Physical DS1 List* window. ***Logical DS0 List...***: This button provides access to the *Logical DS0 List* window.

6.2.1.8 Modify the VB-INA

The *VB-INA* window can be reached only from the *VRT/VB List* window via ***Edit VRT/VB...*** button.

Procedure Complete the following procedure to modify the VB-INA.

Step	Procedure

1. Use the option menu **VRT/VB id** to choose a desired VRT/VB type.

If you want to ...	then ...
get the current service states of the VRT/VB	click on ***Get*** in the **Operational State** field.
add a logical DS1	use the option menu at the right-hand side of the ***Add*** button to choose Logical DS1 and click on ***Add***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26)
add a logical DS0	use the option menu at the right-hand side of the ***Add*** button to choose Logical DS0 and click on ***Add***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35)
open the *Physical DS1 List* window	click on ***Physical DS1 List...***. The *Physical DS1 List* window pops up (cf. Chapter 6.2.2, page 6-17).
open the *Logical DS0 List* window	click on ***Logical DS0 List...***. The *Logical DS0 List* window pops up (cf. Chapter 6.2.4.1, page 6-31.
close the window	Click on ***Close***.

6.2.2 Physical DS1 List window

This window displays physical DS1 id list based on a selection criteria. It provides access to the *Physical DS1* window for parameter modification and to the *Logical DS1* window for logical DS1 parameter and cross-connection modification.

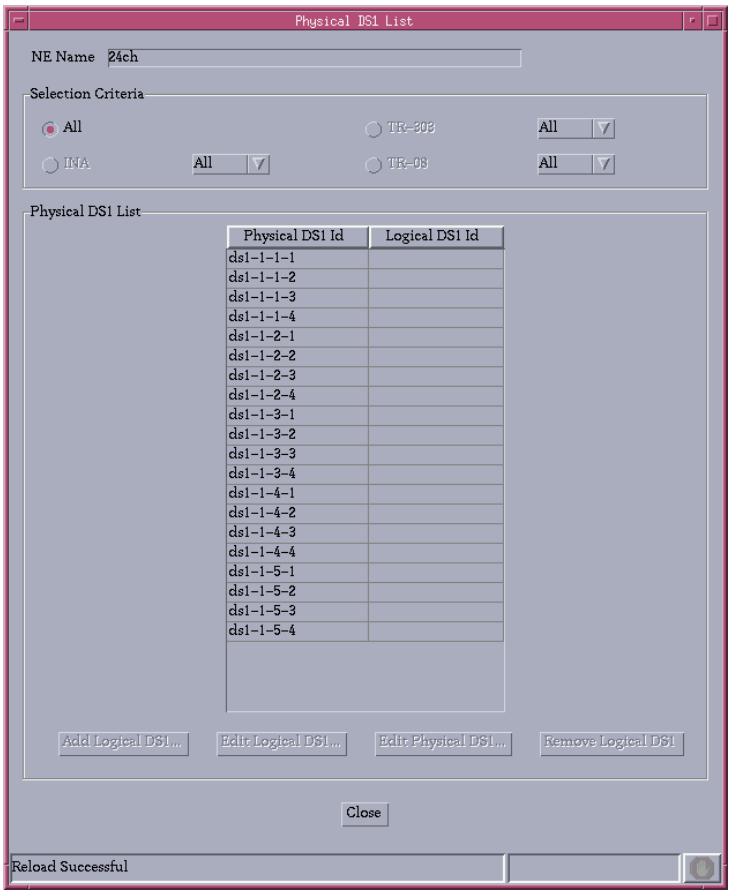

Figure 6-8 Physical DS1 List window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Selection Criteria	Radio buttons are used to define the list that will be displayed in the field **Physical DS1 List**. ■ **All**: The list displays all logical DS1s currently present in the NE for all VRT/VBs. ■ **TR-303, TR-08, INA**: In all these cases a option menu is available showing the possible options. Selection of one of these VRT/VB ids automatically sets the corresponding radio button. If no VRT/VB id is selected, the radio button is not editable (i.e. the user will not be able to set it). ⇒ NOTE: For COT (NE R1.2.3) VRT TR-303 is not possible and therefore the corresponding radio button is disabled.
Physical DS1 List	The information in this field is displayed in a table. ■ **Physical DS1 Id**: Displays the physical DS1 id within the VRT/VB id. Possible values: ds1-1-{1, 5}-{1, 4}. ■ **Logical DS1 id**: Indicates the logical DS1 id within the VRT/VB id. Possible values: v3fdr-1-{1, 28} for TR-303 v8fdr-{1, 20}-{a, b, c, d} for TR-08 ina-{1, 20} for INA. The ***Add Logical DS1...*** button is available only if a VRT/VB id has been selected without cross-connection to a logical DS1 and the maximum number of logical DS1s has not yet been created: max. 4 for TR-08 max. 20 for TR-303 max. 1 for INA. This button provides access to the *Logical DS1* window to add a new logical DS1. Depending on the right-hand side option menu provides the ***Edit*** button access to different windows: *Physical DS1* window, *Logical DS1* window. ***Edit Physical DS1*** is always available. ***Edit Logical DS1*** is available only if the selected physical DS1 is cross-connected to the a logical DS1. The ***Remove Logical DS1...*** button can be used to remove the physical DS1-logical DS1 cross-connection selected in the list.

6.2.2.1 Modify the physical DS1 list

Procedure Complete the following procedure to modify the physical DS1 list.

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***List -> Physical DS1*** via the menu bar. The *Physical DS1 List* window pops up.

   This window can also be reached from the *VRT/VB List* window (cf. Chapter 6.2.1.1, page 6-6) and the *VRT/VB* windows (Chapter 6.2.1.3, page 6-8, Chapter 6.2.1.5, page 6-13, Chapter 6.2.1.7, page 6-15).

2. Use the radio buttons in the **Selection Criteria** field to choose a desired VRT/VB.

If you want to ...	then ...
add a logical DS1	select the desired physical DS1 id and press ***Add Logical DS1...***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26). The same result is obtained by double clicking in the corresponding row.
edit a logical DS1	select the desired logical DS1 id and press ***Edit Logical DS1...***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26). The same result is obtained by double clicking in the corresponding row.
edit a physical DS1	select the desired physical DS1 id and press ***Edit Physical DS1...***. The *Physical DS1* window pops up (cf. Chapter 6.2.3.1, page 6-21).
remove a logical DS1	Click on ***Remove Logical DS1***. A *Warning* window pops up displaying the following message: **`Deleting Logical DS1 id may be service affecting and may remove existing semipermanent cross-connections (DS0 end points). OK to proceed?`** If you decide to continue, the AEM will send a delete-cross-connection message to the NE.
exit the window	click on ***Close***.

6.2.3 Creation of VRT/VB logical feeder (T1 cross-connection)

Assumptions

For the following description it is assumed that the NE is connected, a logical feeder is not yet created and the physical feeder (DS1) is not in use by any other logical feeder.

The following figure shows a block diagram of T1 cross-connections.

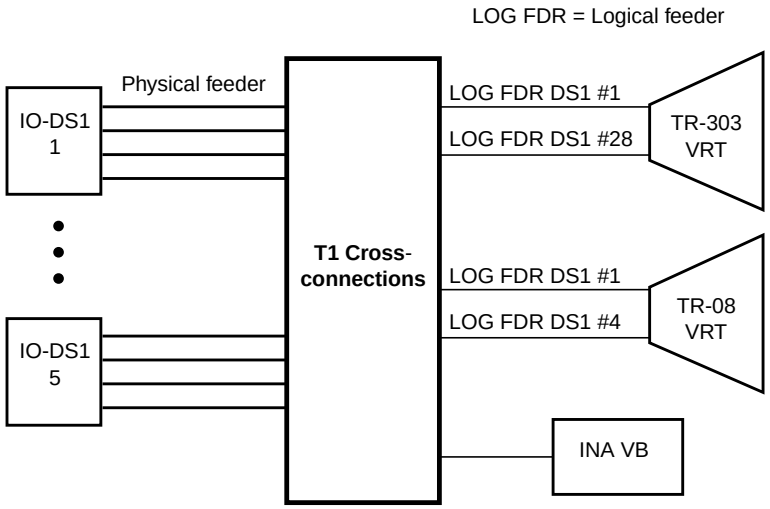

Figure 6-9 T1 Cross-connections

6.2.3.1 Physical DS1 window

This window displays physical information of single physical DS1 and cross-connection information. It provides access to the *Logical DS1* window for adding or editing the logical DS1, depending on the cross-connection state of the physical DS1.

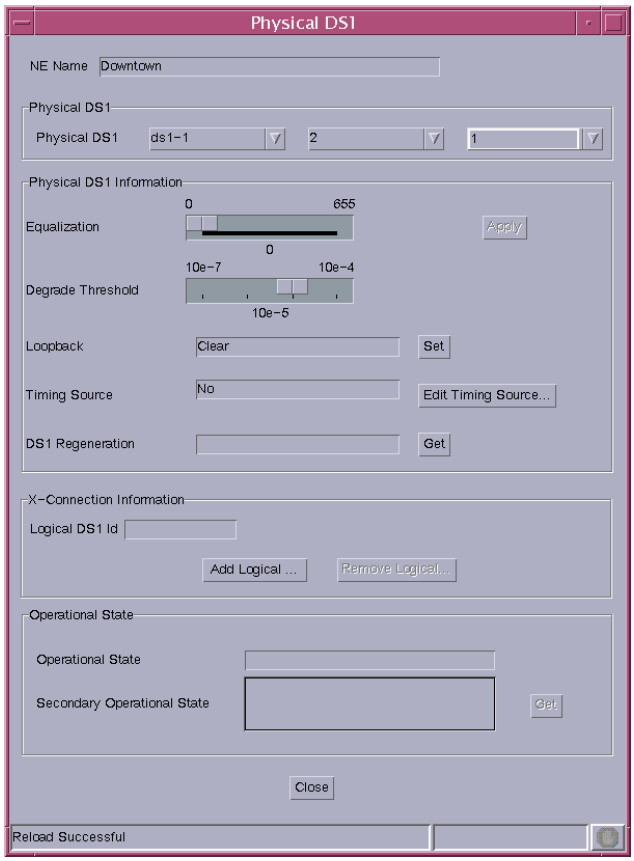

Figure 6-10 Physical DS1 window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Physical DS1	These fields display the physical DS1id by means of three option menus: ■ The first menu contains the ds1-shelf (ds1-1). ■ The second menu contains the slot number inside NE {1, 5}. ■ The third menu shows the feeders {1, 4} inside the selected slot. Possible values: ds1-{1, 5}-{1, 4}. Selecting a slot number (second option menu) results in an update of the third option menu (feeder). ⇒ NOTE: Feeder which are not yet cross-connected are marked with a white background (add function is possible); the other feeders are marked with a grey background (edit function is possible).
Physical DS1 Information	**Equalization**: This slider can be used to define the cable length (in ft) to the DSX-1. Possible values are: 0 to 655. **Degrade Threshold**: This slider can be used to define the physical DS1 signal degrade threshold. Possible values are: **10E-7**, **10E-6**, **10E-5**, **10E-4**. The ***Apply*** button is used to confirm the changes. It is available only if the **Equalization** and/or the **Degrade Threshold** has been modified. **Loopback**: This field displays the current loopback state (**clear** or **set**) (for loopback details see Chapter 7.4.1.5, page 7-31). The ***Label*** button is used to set or clear the physical DS1 loopback. Depending on the loopback state reflected, this button displays the possible operation (***Clear***, if the loopback is set; ***Set***, if the loopback is cleared). **Timing Source**: Displays whether or not the selected physical DS1 is the timing source reference (**Yes** or **No**). The reference can be changed via the ***Edit Timing Source ...*** button on the right-hand side. This button provides access to the *Timing Source Control* window (cf. Chapter 5.5.6.4, page 5-129) to allow the modification of the current NE timing source reference. **DS1 Regeneration** (only for NE R1.2.2): This field displays the current DS1 regeneration state (**clear** or **set**). The ***Label*** button is used to set or clear the physical DS1 regeneration. Depending on the state reflected, this button displays the possible operation (***Clear***, if the state is set; ***Set***, if the state is cleared).

Parameters/ Buttons	Description
X-Connection Information	**Logical DS1 Id**: This field displays the logical DS1 id which is cross-connected with the selected physical DS1 id. If there is no cross-connection this field is empty. ***Add Logical DS1...***: This button provides access to the *Logical DS1* window to add a new logical DS1 to the selected physical DS1. The button is available only if there is no logical DS1 cross-connection to the selected physical DS1. ***Edit Logical DS1...***: This button provides access to the *Logical DS1* window to edit the logical DS1parameters. The button is available only if there is a logical DS1 cross-connection to the selected physical DS1. ***Remove Logical DS1***: Removes the selected physical DS1-logical DS1 cross-connection.
Operational State	The **Operational State** shows the service state obtained from the NE through the use of the ***Get*** button. Possible values: Enabled, Disabled. The **Secondary Operational State** shows the secondary service state obtained from the NE through the use of the ***Get*** button. The ***Get*** button is used to retrieve the service states.

6.2.3.2 Modify the physical DS1

The *Physical DS1* window can be reached from the *IO-DS1* window (cf. Chapter 5.5.5.1, page 5-54), *Logical DS1* window (cf. Chapter 6.2.3.3, page 6-26) and *Physical DS1 List* window (Chapter 6.2.2, page 6-17).

Procedure Complete the following procedure to modify the physical DS1.

Step	Procedure

1. Use the option menus **Physical DS1 id** to select the desired feeder.

If you want to ...	then ...
change the values for **Equalization** and/or **Degrade Threshold**	use the corresponding sliders and press ***Apply***.
change the loopback state	use the label button on the right-hand side of the corresponding text field. A *Warning* window pops up displaying the following message: **`Set or Clear Loopback may be service affecting. Do you want to continue?`**
modify the current NE timing source reference	click on ***Edit...*** button on the right-hand side of the **Timing Source** field. The *Timing Source Control* window pops up (cf. Chapter 5.5.6.4, page 5-129).
change the DS1 regeneration state	use the label button on the right-hand side of the corresponding text field.
get the current service states	click on ***Get*** in the **Operational State** field.
add a logical DS1	click on ***Add Logical DS1...***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26).

If you want to ...	then ...
edit a logical DS1	click on ***Edit Logical DS1...***. The *Logical DS1* window pops up (cf. Chapter 6.2.3.3, page 6-26.
remove a logical DS1	click on ***Remove Logical DS1***. A *Warning* window pops up displaying the following message: **`Deleting Logical DS1 id may be service affecting and may remove existing semi-permanent cross-connections (DS0 end points), OK to proceed?`** If you decide to continue, the AEM will send a delete-cross-connection message to the NE.
exit the window	click on ***Close***.

6.2.3.3 Logical DS1 window

This window can be used to add or edit logical DS1 and to cross-connect physical DS1.

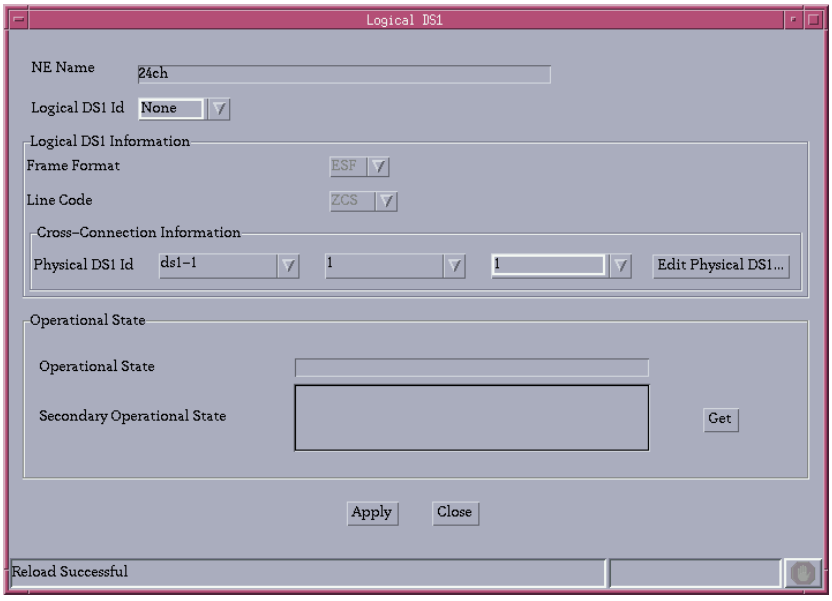

Figure 6-11 Logical DS1 window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Logical DS1	These fields display the logical DS1 id by means of two option menus: ■ The first menu contains the VRT/VB list in where it is possible to create a logical DS1 Possible values: v3fdr-1 (for TR-303), v8fdr-{1, 20} (for TR-08), ina-{1, 20} (for INA). ■ The second menu contains the logical DS1 number inside the corresponding VRT/VB. Selecting a VRT/VB (first option menu) results in an update of the second option menu (logical DS1 number). NOTE: Logical DS1 numbers which are not yet cross-connected are marked with a white background (add function is possible); the other feeders are marked with a grey background (edit function is possible).
Logical DS1 Information	**Frame Format**: This option menu shows the possible frame formats. Three possible values: **ESF** (Extended SuperFrame), **FS** (SuperFrame with Datalink) or **SF** (SuperFrame). Default values are: ■ ESF for TR-303 not reprovisionable ■ FS for TR-08 (DS1-a) not reprovisionable ■ SF for TR-08 (DS1-{b,d} not reprovisionable ■ ESF for INA ESF or SF. Values are only changeable for INA VB. **Line Code**: This option menu shows the line coding values: Possible values are: ■ **ZCS** (Zero Code Suppression) or ■ **B8ZS** (Bipolar with 8 Zero Suppression). The default is **B8ZS** for TR-303, TR-08 and INA VRT/VBs. Values only changeable for TR-08 and INA. **ZCS** is blocked for TR-303 VRTs

Parameters/ Buttons	Description
Cross-Connection Information	**Physical DS1 id**: These fields display the physical DS1id by means of three option menus: ■ The first menu contains the shelf number {ds1-1}. ■ The second menu contains the slot number inside the shelf {1, 5}. ■ The third menu shows the feeders {1, 4} inside the selected slot. Possible values: ds1-{1, 5}-{1, 4}. Selecting a slot number (second option menu) results in an update of the third option menu (feeder). ***Edit Physical DS1...***: This button provides access to the *Physical DS1* window. The button is available only if a physical DS1 has been selected.
Operational State	The **Operational State** shows the service state obtained from the NE through the use of the ***Get*** button. Possible values: Enabled, Disabled. The **Secondary Operational State** shows the secondary service state obtained from the NE through the use of the ***Get*** button. The ***Get*** button is used to retrieve the service states.
Apply	***Apply***: Depending on the selected logical DS1 id this button provides different functions: For logical DS1 not cross-connected (white background): ***Add Logical DS1***. For logical DS1 cross-connected (gray background): ***Edit Logical DS1***. This function is available only in the following situations: ■ VRT/VB type is TR-08 and the Line Code has been modified. ■ VRT/VB type is INA and the Frame Format and/or Line Code has been modified.

6.2.3.4 Modify logical DS1

The *Logical DS1* window can be reached from the
IO-DS1 window (cf. Chapter 5.5.5.1, page 5-54),
Physical DS1 window (cf. Chapter 6.2.3.1, page 6-21),
VRT/VB List window (cf. Chapter 6.2.1.1, page 6-6)
VRT/VB windows (cf. Chapter 6.2.1.3, page 6-8 - Chapter 6.2.1.7, page 6-15)
Physical DS1 List window (cf. Chapter 6.2.3.1, page 6-21).

Procedure

Complete the following procedure to modify the logical DS1 window.

Step	Procedure

1. Use the option menus **Logical DS1** to select the desired DS1 id.

If you want to ...	then ...
add a logical DS1	use the option menu **Logical DS1** to select a logical DS1 with a white background and click on ***Apply***.
change the frame format (only possible for INA)	use the option menu **Logical DS1** to select the desired logical DS1 (grey background), use the option menu **Frame Format** to change the value and click on ***Apply***.
change the line code (only possible for INA or TR-08)	use the option menu **Logical DS1** to select the desired logical DS1 (grey background), use the option menu **Line Code** to change the value and click on ***Apply***.
edit a physical DS1	use the option menus **Physical DS1** to select the desired physical DS1 and click on ***Edit Physical DS1...***. The *Physical DS1* window pops up (cf. Chapter 6.2.3.1, page 6-21).
get the current service states	click on ***Get*** in the **Operational State** field.
exit the window	click on ***Close***.

6.2.4 Creation of VRT/VB logical T0 (subscriber)

Assumptions

For the following description it is assumed that the NE is connected, the logical T0 is not yet created and the physical line (drop or roc) is not in use by any other logical T0.

The following figure shows a block diagram of T0 cross-connections.

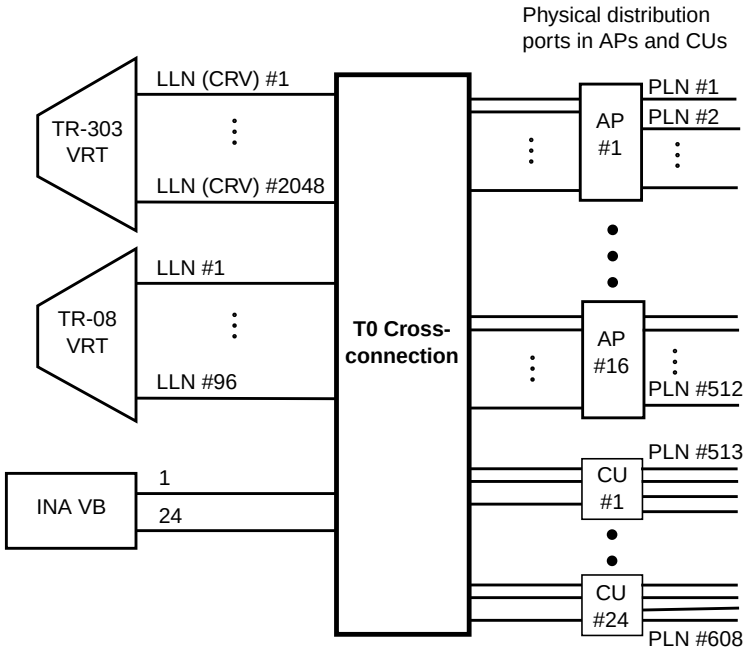

Figure 6-12 T0 Cross-connections

6.2.4.1 Logical DS0 list window

This window displays the logical DS0 list based on a selection criterion. It provides access to the *Logical DS*0 window to edit logical DS0s.

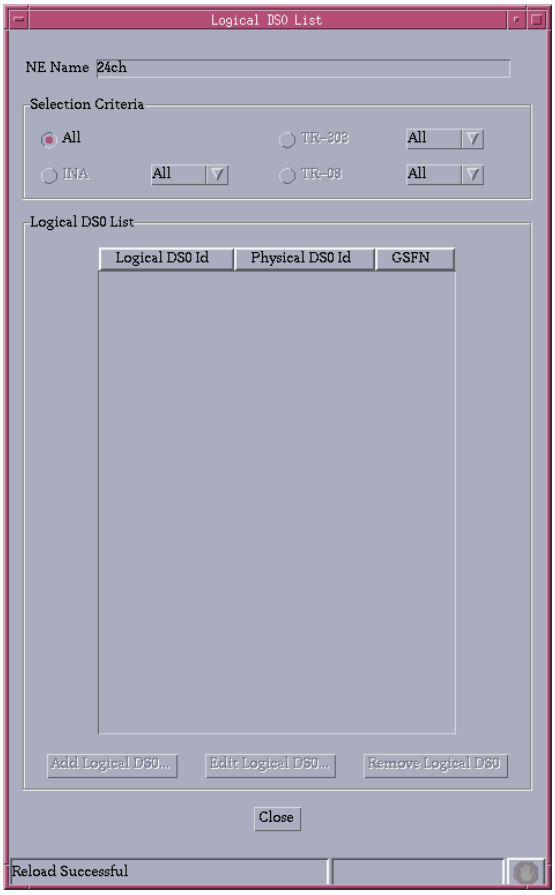

Figure 6-13 Logical DS0 List window

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Selection Criteria	Radio buttons are used to define the list that will be displayed in the field **Logical DS0 List** (see below). ■ **All VRT**: The list displays all logical T0s currently present in the NE for all VRT/VBs. ■ **TR-303, TR-08, INA**: In all these cases except TR-303, a non-editable option list is available showing the possible options. Selection of one of these VRT/VB ids automatically sets the corresponding radio button. If no VRT/VB id is selected, the radio button is not editable (i.e. the user will not be able to set it). Possible values: vrt303 or ALL for TR-303 {1, 20} or ALL for TR-08 {1, 20} or ALL for INA.
Logical DS0 List	The information in this field is displayed in a table: ■ **Logical DS0 id**: Indicates the logical DS0 id within the VRT/VB id. Possible values: v3dp-1-{1, 2048} for TR-303 v8dp-{1, 20}-{1, 96} for TR-08 inads0-{1,20}-{1, 24} for INA. ■ **Physical DS0 Id**: Displays the physical DS0 id cross-connected to the logical DS0 id shown in the row. Possible values: drop-{1}-{1,16}-{1,32} for APs m2drop-{1}-{1,24}-{1,4} for CUs. ■ **GSFN**: Generic signalling function. The following values are possible: DFLT (default), 2LS, 2GS, Coin, 2FXLS, 2FX, 2RV0, 2NOS, ISDN, 4DO (only for ROC), Data, EBS, AC, LR, NO1, NO2, BRI, TO, DPT, DX4[N, R], FX[O, P][1, 2, 3, 5], FX[S, T][1, 2, 3, 5], EM4[C, H], PLR[1, 2], ETO4, FXO, OCU[1, 2, 3], SW56, TD[O, S][A, B, C, D], TO4, 2RVT, FXS, EM0, FXOD, FXS0, NO, OCU0, Unknown. ***Add Logical DS0...***: This button is available only ■ if no row in the table is selected and ■ if a specific VRT/VB id has been selected and the maximum number of logical T0s has not been created yet: max. 96 for TR-08 max. 2048 for TR-303 max. 24 for INA.

Parameters/ Buttons	Description
Logical DS0 List (continue)	***Edit Logical DS0...***: This button provides access to the *Logical DS0* window to edit the logical DS0 parameters (whenever this is possible). NOTE: This button is disable if GSFN = Unknown or 4DO. ***Remove Logical DS0...***: This button can be used to remove the cross-connection selected in the list. This button is disabled if Physical DS0 id = roc-1 or the GSFN = 4DO.

6.2.4.2 Modify the logical DS0 list

Procedure Complete the following procedure to modify the logical DS0 list:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***List -> Logical DS0*** via the menu bar. The *Logical DS0 List* window pops up. This window can also be reached from the *VRT/VB List* window (cf. Chapter 6.2.1.1, page 6-6) and *VRT/VB* windows (cf. Chapter 6.2.1.3, page 6-8 - Chapter 6.2.1.7, page 6-15).
2.	Use the radio buttons in the **Selection Criteria** field to choose a desired VRT/VB.

If you want to ...	then ...
add a logical DS0	click on ***Add Logical DS0...***.The new VRT/VB id will be inserted into the **Logical DS0 List**.
edit a logical DS0	select an appropriate row in the **Logical DS0 List** and press ***Edit Logical DS0...***. The *Logical DS0* window pops up (cf. Chapter 6.2.4.3, page 6-35).

If you want to ...	then ...
remove a logical DS0	select an appropriate row in the **Logical DS0 List** and press ***Remove Logical DS0***. A *Warning* window pops up displaying the following message: **`Logical DS0 will be removed. Ok to proceed?`** NOTE: If the logical DS0 is red-lined the following warning message pops up: **`Redlined logical DS0 will be removed. Ok to proceed?`** If you decide to continue, the remove operation will be started. The information displayed will be updated once the remove operation is finished to show the current list.
exit the window	click on ***Close***.

6.2.4.3 Logical DS0 window

This window is used to add or modify logical DS0. The parameters shown in this window are enabled or disabled depending on the action selected and where this action has been selected from. This window allows cross-connection of physical DS0-logical DS0 (T0 cross-connections), as well as service configuration and modification.

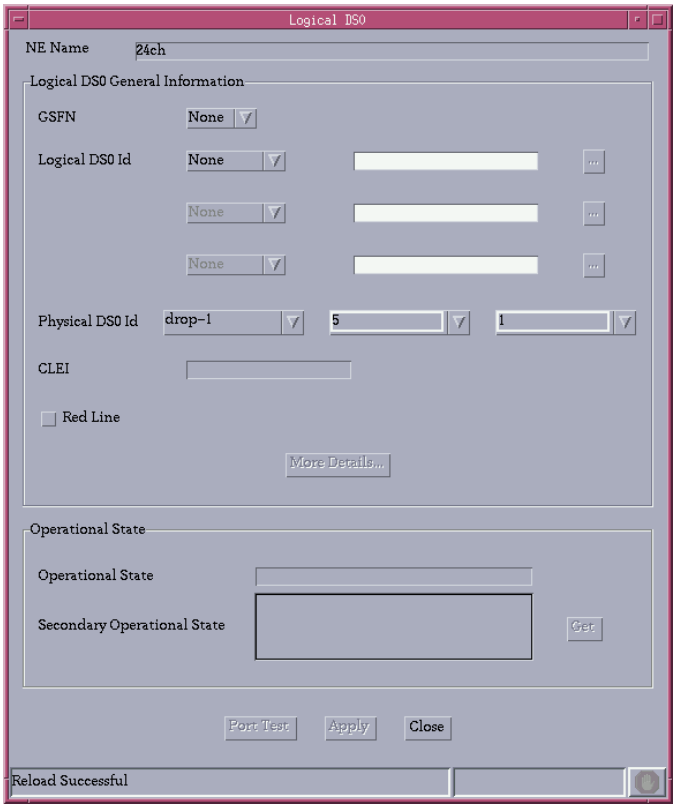

Figure 6-14 Logical DS0 window (tab General)

The following table shows the view/edit option of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Logical DS0 General Information	**GSFN**: The generic signalling function identifies the signalling and transmission function of the provisioned service. This option menu provides access to the *Service Details* windows (cf. Chapter 6.2.4.7, page 6-41 to Chapter 6.2.4.25, page 6-62). NOTE: GSFN type is NOT modifiable in R1.7. A change in the GSFN of a logical DS0 implies deletion and new creation of a logical DS0. Depending on the GSFN selected, the list of parameters needed for configuring a subscriber differs. The GSFN parameters are dependent on the GSFN type, and they are shown in each GSFN group table. There are some services which do not have special details: COIN, ISDN (only for TR-303), AC, DATA, EBS, LR, NO[1,2], OCU0 (NE R1.7), NO (NE R1.7), COIN2 (R1.2.3), DFLT2 (R1.2.3), and 2LO (R1.2.3). For these GSFNs the ***More Details*** button is disabled (see below). **Logical DS0 Id**: Three lines show the logical DS0 id(s) by means of a option menu and a text field. The option menu contains the VRT/VB list, the text field shows the logical DS0 number inside the selected VTR/VB. A command button provides access to the *Select Logical DS0* window for adding or editing cross-connections. Possible values for the option menu: v8dp-{1, 20}{1, 96} for TR-08 v3dp-{1}-{1, 2048} for TR-303 inads0-{1, 20}-{1, 24} for INA. NOTE: Existing DS0s are marked with a grey background (edit function is possible); for empty fields (white background) only the add function is possible. The second line is available only when the **GSFN** field is populated with BRI (not for TR-303), NO1, NO2 or OCU1, OCU2, OCU3 for a second entry in bundle logical DS0s. The third line is available only when the **GSFN** field is populated with BRI (not for TR-303) for a third entry in bundle logical DS0s.

Parameters/ Buttons	Description
Logical DS0 General Information (continued)	**Physical DS0 Id**: These fields display the physical DS0 id by means of three option menus: ■ the first menu contains the drop-shelf type: drop-1 (for AP), m2drop-1 (for MSD2), iatvdp-{1, 32} (for IAT). ■ the second menu contains the slot number inside the shelf or subshelf: {1, 16} for the AP slots, {1, 24} for the MDS2 slots, 1 for the IAT slots. ■ the third menu contains the port number inside the slot: {1, 32} for the AP ports, {1, 4} for the MSD2 ports, {1, 24} for the IAT ports. After changing the drop-shelf type (first option menu) the other two option menus are set None. After changing the slot number (second option menu) the port number (third option menu) is set to None. **CLEI**: In order to provide service, the subscriber has to be assigned to the proper AP. To ensure that the service requested will work, the user should enter the CLEI code of the AP that is supposed to provide that type of service (cf. Table 6-1). **Red Line**: This check box is used to identify red-lined subscribers. A warning message appears when red-lined logical DS0s are to be edited. ***More Details***: This button provides access to a specific *Service Details* window. The button is enabled only if a GSFN has been selected.
Operational State	The **Operational State** shows the service state obtained from the NE through the use of the ***Get*** button. Possible values: Enabled, Disabled. The **Secondary Operational State** shows the secondary service state obtained from the NE through the use of the ***Get*** button. The ***Get*** button is used to retrieve the service states.
	Port Test: This button can be used to start the port test. The button is enabled only if a physical DS0 has been selected. For more information refer to Chapter 7.4.
Apply	This button is used to confirm edit or add logical DS0.

Table 6-1 GSFN and related CLEIs

GSFN	CLEI	Described in ...
DFLT	E5ISFA0AAA, E5ISFB0AAA, SLCUVR0BAA, SAC1AC0AAA	Chapter 6.2.4.8, page 6-42
EM0 (NE R1.7.0)	-	Chapter 6.2.4.9, page 6-43
FXS0 (NE R1.7.0)	-	
2LS	E5ISFA0AAA, E5ISFB0AAA, SLCUVR0BAA, SAC1AC0AAA	Chapter 6.2.4.10, page 6-44
2GS	E5ISFA0AAA, E5ISFB0AAA, SAC1AC0AAA	
2FXLS	E5ISFA0AAA, E5ISFB0AAA	
2FX	E5ISFA0AAA, E5ISFB0AAA	
2RVO	E5ISFA0AAA, E5ISFB0AAA	Chapter 6.2.4.11, page 6-46
2NOS	E5ISFA0AAA, E5ISFB0AAA	Chapter 6.2.4.12, page 6-47
BRI	5SC4PT0CAA	Chapter 6.2.4.13, page 6-48
TO	SAC1AH0AAA, SAC1AEHAAB, SLCUVN0BAA	Chapter 6.2.4.14, page 6-49
2RVT	SCA1AH0AA, SLTRFE0CAA	Chapter 6.2.4.15, page 6-50
DX4[N,R]	5SC3HJEAAA	Chapter 6.2.4.16, page 6-51
FX[O,P][1,2,3,5]	SAC1BF0AAB	
FX[S,T][1,2,3,5]	5SC3HJEAAA	
EM4[C,H]	SAC1BG0AAB	Chapter 6.2.4.17, page 6-53
PLR[1,2]	SAC1BG0AAB	
ETO4	5SC3HJEAAA	Chapter 6.2.4.18, page 6-54
FXO	SAC1AH0AAA, SLCUVN0BAA	Chapter 6.2.4.19, page 6-55
OCU[1,2,3]	5SCTFFGAAB	Chapter 6.2.4.20, page 6-57
SW56	5SCTFFGAAB, 5SC3240AAA	Chapter 6.2.4.21, page 6-58
TD[O,S][A,B,C,D]	SAC1BF0AAB	Chapter 6.2.4.22, page 6-59
TO4	5SC3HJEAAA	Chapter 6.2.4.23, page 6-60
FXOD (NE R1.7.0)	-	Chapter 6.2.4.24, page 6-61
DPT	SCA1AH0AAA, SACPDC0BAA, SLCUVN0BAA	Chapter 6.2.4.25, page 6-62

6.2.4.4 Add a logical DS0

Launch the Logical DS0 window

The *Logical DS0* window can be reached from *VRT/VB* windows (cf. Chapter 6.2.1.3, page 6-8 - Chapter 6.2.1.7, page 6-15), *Logical DS0 List* window (cf. Chapter 6.2.4.1, page 6-31), *Telephony Application Pack* window (cf. Chapter 5.5.5.7, page 5-66), *Channel Unit* window (cf. Chapter 5.5.5.13, page 5-75), *IAT Subshelf* window (cf. Chapter 5.5.5.19, page 5-87) by clicking on ***Add Logical DS0***.

Procedure

Complete the following procedure to add a logical DS0:

Step	Procedure
1.	Use the option menus **Logical DS0 id** to select a desired VRT/VB with a associated empty text field (white background).
2.	Click on ***Apply*** to confirm
3.	Click on ***Close*** to exit the window.

6.2.4.5 Modify a logical DS0

Launch the Logical DS0 window

The *Logical DS0* window can be reached from *Logical DS0 List* window (cf. Chapter 6.2.4.1, page 6-31), *Telephony Application Pack* window (cf. Chapter 5.5.5.7, page 5-66), *Channel Unit* window (cf. Chapter 5.5.5.13, page 5-75), *IAT Subshelf* window (cf. Chapter 5.5.5.19, page 5-87) by clicking on ***Edit Logical DS0***.

Procedure

Complete the following procedure to edit a logical DS0 of a VRT/VB:

Step	Procedure

1. Use the option menus **Logical DS0 id** to select a desired VRT/VB with a associated text field (grey background) to select a logical DS0 other than the pre selected (if desired).

If you want to ...	then ...
modify the GSFN	use the option menu **GSFN** to select the desired generic signalling function and click on ***More Details***. The corresponding *Service Details* windows pops up for modifying the GSFN. Back in the *Logical DS0* window click on ***Apply*** to confirm.
add a cross-connection	use the option menus **Logical DS0 id** to select a desired VRT/VB with a associated text field (grey background), use the option menus **Physical DS0 id** to select the desired physical DS0 and click on ***Apply***.
modify the subscriber parameters	use the text field **CLEI** and the check box **Red Line** to enter/define the corresponding values and click on ***Apply***.
exit the window	click on ***Close***.

NOTE:
If the logical DS0 is red-lined the following warning message pops up after confirming the edit action:

`Edition of Redlined Logical DS0. Ok to proceed?`

6.2.4.6 Use the Select Logical DS0 window

The *Select Logical DS0* window can be reached only from the *Logical DS0* window (cf. Chapter 6.2.4.3, page 6-35).

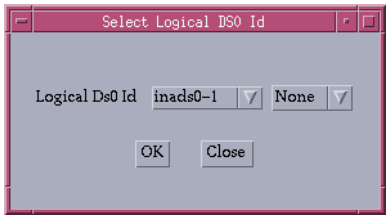

Figure 6-15 Select Logical DS0 window

Procedure

Complete the following procedure to select a logical DS0:

Step	Procedure
1.	Use the option menus **Logical DS0 Id** to select the desired VRT/VB and the corresponding logical DS0 number.
2.	Click on ***OK*** to confirm the selection. The *Logical DS0* window is one the screen again.

6.2.4.7 Common parameters in service details windows

The following table shows the parameters which are included in all service details windows:

Parameters/ Buttons	Description
GSFN	Displays the selected GSFN for the logical DS0.
Command buttons	The ***OK*** button is used to confirm the changes. The ***Close*** button can be used to close the window without changes.

6.2.4.8 DFLT Service Details window

Overview

The DFLT (default POTS/SPOTS) service is primarily applicable to TR-08 applications.

Figure 6-16 Logical DS0 window (DFLT)

Service Details (Parameters)	Description
Enable Full Time Transmission	When a check mark is set in the check box the transmission circuits in the AP or CU remain active when the subscriber is on-hook. Possible values: **Set**, **Not set**. Default: Set.
Loss Mode	Use this option menu to specify whether the AP or CU will automatically adjust its transmit/receive loss to control the overall loop loss to approximately **2** or **5** dB, or use prescription-set values. Possible values: **2**, **5**, **Auto**. Default: Auto.

6.2.4.9 EM0, FXS0 Service Details windows

Overview

These GSFNs are only available for NE R1.7.0.

EM0: E&M, non locally switched. The E&M function is used to provide the E&M signaling interface.

FXS0: foreign exchange - station, non-locally switched. It is applicable to the emulated SPQ443 phantom channel unit that is used to handle DS0 signals routed to a PBX or key system attached to the secondary T1/DSX-1 line at the IAT.

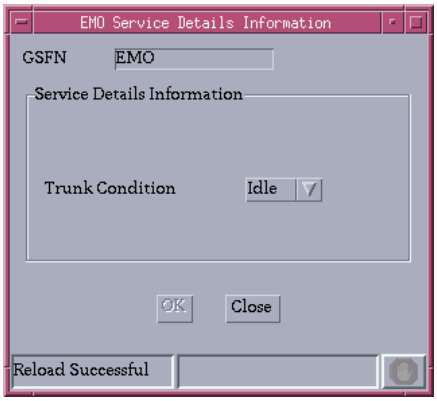

Figure 6-17 Logical DS0 window (EM0, FXS0)

Service Details (Parameters)	Description
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the central office (CO) to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.

6.2.4.10 2LS, 2GS, 2FXLS, 2FX Service Details windows

Overview

The 2LS (2-wire loop-start service with enhanced transmission and signaling provisioning options) is applicable to the POTS32 LPA300, PRCOIN LPA350 and PROG2W LPA380 APs channel units.

The 2GS (2-wire ground-start service with enhanced transmission and signaling provisioning options) is applicable to the PRCOIN LPA350 and PROG2W LPA380 APs channel units.

The 2FXLS (2-wire FX, loop-start) is applicable to the PRCOIN LPA350 and PROG2W LPA380 APs.

The 2FX (2-wire FX, ground-start) is applicable to the PRCOIN LPA350 and PROG2W LPA380 APs.

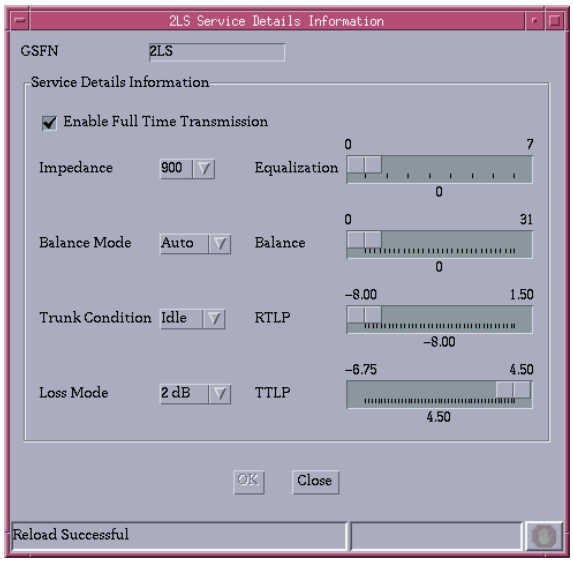

Figure 6-18 Logical DS0 window (2LS)

Service Details (Parameters)	Description
Enable Full Time Transmission	When a check mark is set in the check box the transmission circuits in the AP or CU remain active when the subscriber is on-hook. Possible values: **Set**, **Not set**. Default: Set.
Balance Mode	This option menu can be used to define whether the AP or CU uses an adaptive hybrid to control the 4-wire-to-2-wire balance or a prescription set value. Possible values: **Auto**, **Fixed**. Default: Auto.

Service Details (Parameters)	Description
Balance	This slider can be used to establish the prescription balance setting, in case BAL1 is **Fixed**. If BAL1 has value **Auto**, this control will be disabled (grayed out). Possible values: **0** ... **31**, step 1. Default: 0.
Loss Mode	This option menu can be used to specify whether the AP or CU will automatically adjust its transmit/receive loss to control the overall loop loss to approximately **2** or **5** dB, or use prescription-set values. Possible values: **2**, **5**, **Fixed**. Default: 2.
Receive TLP (RTLP)	This slider is used to reset a fixed receive gain or loss in dB. Negative values define loss; positive values define gain. Only valid if LOSS is **Fixed**. If LOSS is not fixed, this control will be disabled. Possible values: **-8** ... **1.5**, step 0.25. Default: -8.
Transmit TLP (TTLP)	This slider can be used to set a fixed transmission gain or loss in dB. Negative values define loss; positive values define gain. Only valid if LOSS is **Fixed**. If LOSS is not fixed, this control will be disabled. Possible values: **-6.75** ... **4.5**, step 0.25. Default: 4.5.
Impedance	This option menu can be used to define the termination impedance of the tip/ring interface. Possible values: **600**, **900**. Default: 900.
Equalization	This slider can be used to set the slope equalization for the AP or CU. Possible values: **0** ... **7**, step 1. Default: 0.
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO (Central Office) to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle (Busy for 2FX).

6.2.4.11 2RVO Service Details window

Overview The 2RVO (2-wire loop reverse battery, originate) is applicable to the PRCOIN LPA350 and PROG2W LPA380 APs.

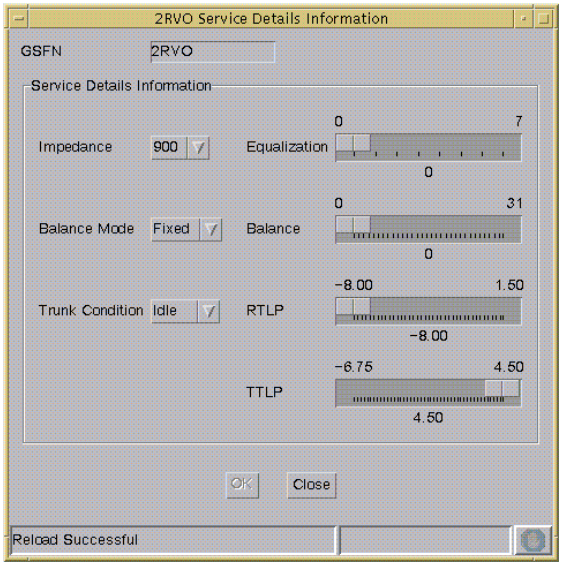

Figure 6-19 Logical DS0 window (2RVO)

Service Details (Parameters)	Description
Receive TLP (RTLP)	This slider can be used to reset a fixed receive gain or loss in dB. Negative values define loss; positive values define gain. Possible values: **-8** ... **1.5**, step 0.25. Default: -8.
Transmit TLP (TTLP)	This slider can be used to set a fixed transmission gain or loss in dB. Negative values define loss; positive values define gain. Possible values: **-6.75** ... **4.5**, step 0.25. Default: 4.5.
Impedance	This option menu can be used to define the termination impedance of the tip/ring interface. Possible values: **600**, **900**. Default: 900.
Balance Mode	This option menu can be used to define whether the AP or CU uses an adaptive hybrid to control the 4-wire-to-2-wire balance or a prescription set value. Possible values: **Auto**, **Fixed**. Default: Fixed.

Service Details (Parameters)	Description
Balance	This slider can be used to establish the prescription balance setting, in case BAL1 is **Fixed**. If BAL1 has value **Auto**, this control will be disabled (grayed out). Possible values: **0** ... **31**, step 1. Default: 0.
Equalization	This slider can be used to set the slope equalization for the AP or CU. Possible values: **0** ... **7**, step 1. Default: 0.
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.

6.2.4.12 2NOS Service Details window

Overview

The 2NOS (2-wire transmission only, with sealing current) is applicable to the PRCOIN LPA350 and PROG2W LPA380 APs.

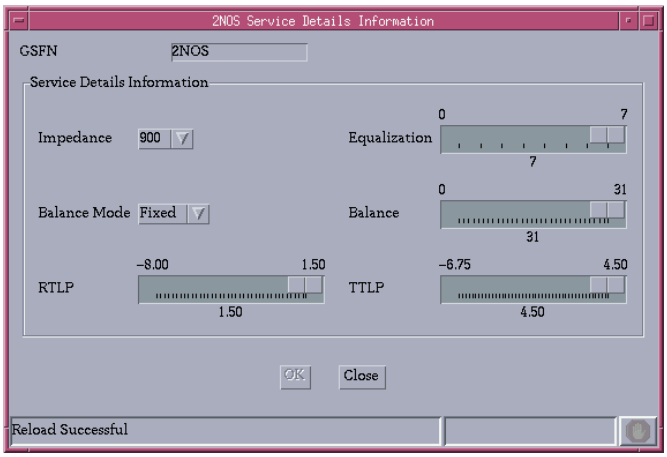

Figure 6-20 Logical DS0 window (2NOS)

Service Details (Parameters)	Description
Receive TLP (RTLP)	This slider can be used to reset a fixed receive gain or loss in dB. Negative values define loss; positive values define gain. Possible values: **-8** ... **1.5**, step 0.25. Default: -8.
Transmit TLP (TTLP)	This slider can be used to set a fixed transmission gain or loss in dB. Negative values define loss; positive values define gain. Possible values: **-6.75** ... **4.5**, step 0.25. Default: 4.5.

Service Details (Parameters)	Description
Impedance	This option menu can be used to define the termination impedance of the tip/ring interface. Possible values: **600**, **900**. Default: 900.
Balance Mode	This option menu can be used to define whether the AP or CU uses an adaptive hybrid to control the 4-wire-to-2-wire balance or a prescription set value. Possible values: **Auto**, **Fixed**. Default: Fixed.
Balance	This slider can be used to establish the prescription balance setting, in case BAL1 is **Fixed**. If BAL1 has value **Auto**, this control will be disabled (grayed out). Possible values: **0** ... **31**, step 1. Default: 0.
Equalization	This slider can be used to set the slope equalization for the AP or CU. Possible values: **0** ... **7**, step 1. Default: 0.

6.2.4.13 BRI Service Details window

Overview

The BRI (basic rate interface transmission extension (3 DS0 ISDN BRITE)) is applicable to the AUA293 ISDN BRITE channel unit which uses the U-Interface 2B1Q signal comprising two B channels and one D channel, plus overhead.

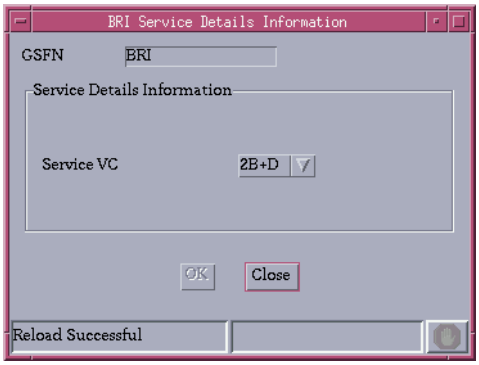

Figure 6-21 Logical DS0 window (BRI)

Service Details (Parameters)	Description
Service VC	Switched virtual connection for ISDN. This option menu can be used to select the combination of bearer (B) channels provided to the subscriber. Possible values: **2B+D**, **B1+D**, **B2+D**, **D**. Default: 2B+D.

6.2.4.14 TO Service Details window

Overview

The TO (transmission only, no sealing current) is used for a private line application with no DC signal. It is applicable to the SPQ442 channel unit which provides four channels of service which can be used for 2-wire non-switched private lines.

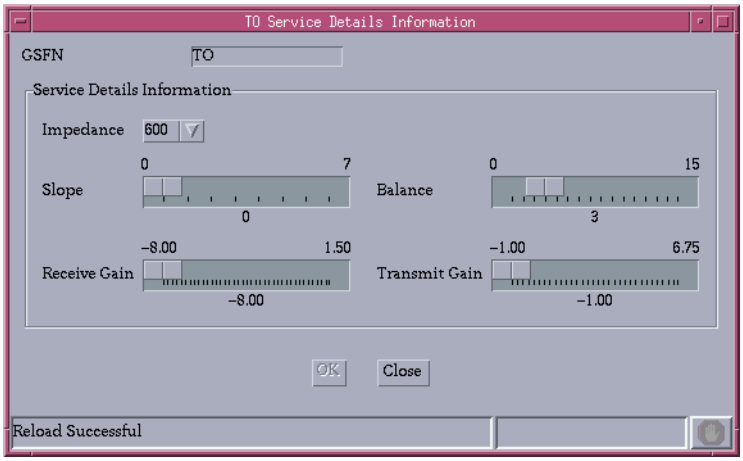

Figure 6-22 Logical DS0 window (TO)

Service Details (Parameters)	Description
Impedance	The transmit and receive impedance parameter selects the termination impedance of the channel unit. Possible values: **600**, **900**. Default: 600.
Balance	This slider can be used to specify the precision network for the 4-wire-to-2-wire hybrid balance function. Possible values: **0** ... **15**, step 1. Default: 3.
Receive Gain	This slider can be used to define the receive gain parameter. Possible values: **-8** ... **1.5**, step 0.25. Default: -8.
Transmit Gain	This slider can be used to define the transmit gain parameter. Possible values: **-1** ... **6.75**, step 0.25. Default: -1.
Slope	This slider can be used to adjust the frequency response of the equalizer. Possible values: **0** ... **7**, step 1. Default: 0.

6.2.4.15 2RVT Service Details window

Overview

The 2RVT (2-wire loop reverse battery, CS) is applicable to the SPQ442, LPA356 APs. This GSFN is only available for NE R1.2.2.

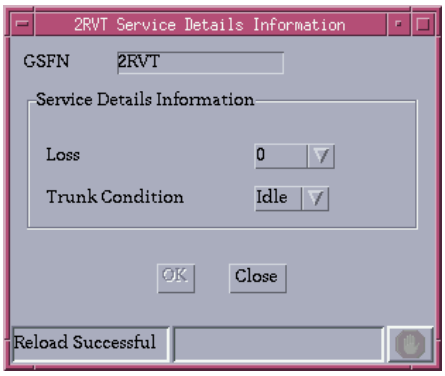

Figure 6-23 Logical DS0 window (2RVT)

Service Details (Parameters)	Description
Loss	This option menu can be used to determine the bidirectional loss. Possible values: **0 dB**, **2.5 dB**. Default: 0 DB.
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.

6.2.4.16 DX4N, DX4R, FX[O, P][1, 2, 3, 5], FX[S, T][1, 2, 3, 5] Service Details windows

Overview

The DX4[N, R] (4-wire duplex signaling, normal simplex and reverse simplex) is applicable to the AUA41B channel unit which provides one channel of service to be used in the MDS2/MDS2B.

The FX[O, P][1,2,3,5] (4-wire foreign Xoffice, no toll diversion/with toll diversion (LSNS, LSRS, GSNS, LSNS)) is applicable to the SPQ444 channel unit which is intended for use in non locally switched loop- and ground-start special services (loop start normal simplex, loop start reverse simplex, ground start normal simplex, ground start reverse simplex).

The FX[S, T][1,2,3,5] (4-wire foreign exchange, no toll diversion/with toll diversion (LSNS, LSRS, GSNS, LSNS)) is applicable to the AUA41B channel unit which provides one channel of service to be used in the MDS2/MDS2B (loop start normal simplex, loop start reverse simplex, ground start normal simplex, ground start reverse simplex).

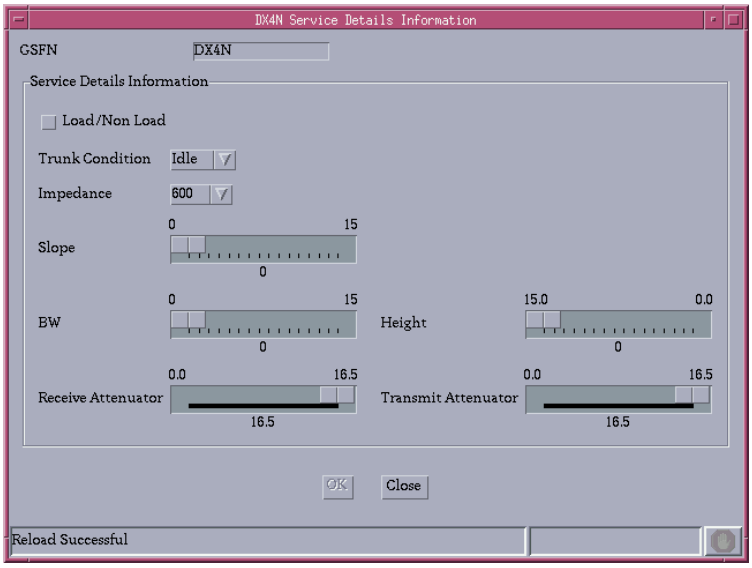

Figure 6-24 Logical DS0 window (DX4N)

Service Details (Parameters)	Description
Transmit Attenuator	This slider can be used to define the transmit attenuator parameter. Possible values: **0** ... **16.5**, step 0.1. Default: 16.5.
Receive Attenuator	This slider can be used to define the receive attenuator parameter. Possible values: **0** ... **16.5**, step 0.1. Default: 16.5.

Service Details (Parameters)	Description
Load/Non Load	This option menu can be used to select whether the transmit equalizer mast be loaded or non-loaded distribution cable. Possible values: **N**, **L**. Default: N.
Bandwidth (BW)	This slider can be used to control the frequency response characteristic of the transmit equalizer. Possible values: **0** ... **15**, step 1. Default: 0.
Slope	This slider can be used to adjust the frequency response of the equalizer. Possible values: **0** ... **15**, step 1. Default: 0.
Impedance	The transmit and receive impedance parameter selects the termination impedance of the channel unit. Possible values: **150**, **600**, **1200**. Default: 600.
Height	This slider can be used to control the amplitude of the transmit equalizer's transfer function. Possible values: **0** ... **15**, step 1. Default: 0.
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.

6.2.4.17 EM4C, EM4H, PLR1, PLR2 Service Details windows

Overview

EM4[C, H]: 4-wire E&M, Type I and Type II. The E&M function is used in PBX tie trunks to provide the E&M signaling interface. It is applicable to the SPQ454 channel unit which is intended for used in PBX tie trunks and it can interface with a PBX or other transmission equipment.

PLR[1,2]: 4-wire pulse link repeater, Type I and Type II. The primary application of the PLR function is also in PBX tie trunks providing the E&M signaling interface with inverted polarity. It is also applicable to the SPQ454 channel unit.

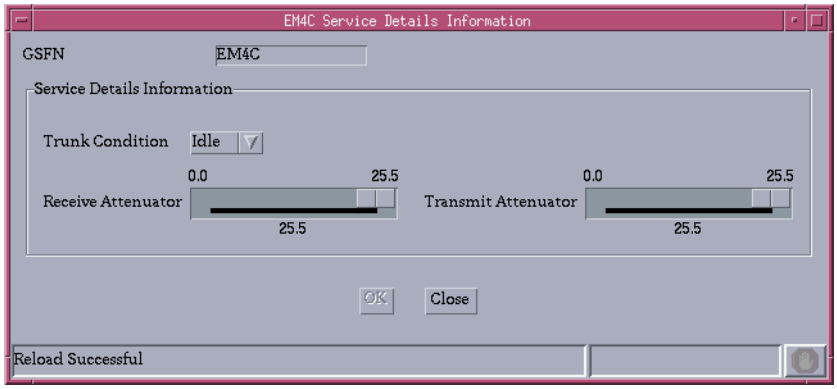

Figure 6-25 Logical DS0 window (EM4C)

Service Details (Parameters)	Description
Transmit Attenuator	This slider can be used to define the transmit attenuator parameter. Possible values: **0** ... **25.5**, step 0.1. Default: 25.5.
Receive Attenuator	This slider can be used to define the receive attenuator parameter. Possible values: **0** ... **25.5**, step 0.1. Default: 25.5.
Trunk Condition	This option menu can be used to determine whether the AP sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.

6.2.4.18 ETO4 Service Details window

Overview

The ETO4 (4-wire equalized transmission only) function is used in private lines (voice or data) when equalization of cable transmission characteristics is required. It is applicable to the AUA41B channel unit.

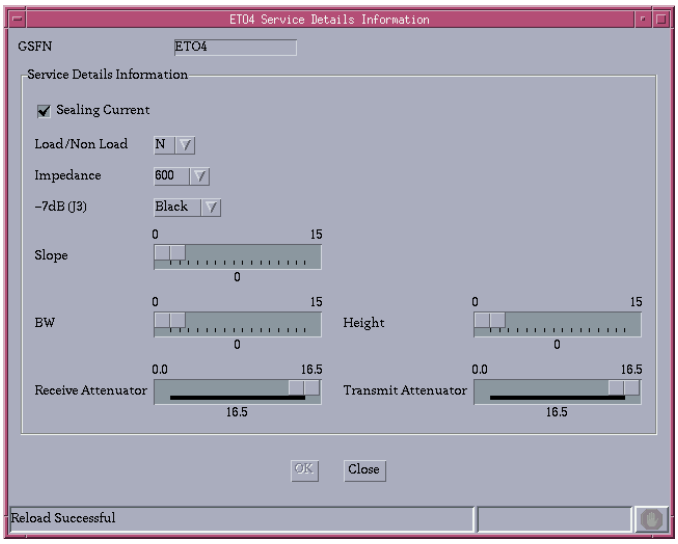

Figure 6-26 Logical DS0 window (ETO4)

Service Details (Parameters)	Description
Sealing Current	When a check mark is set, the channel unit applies a current from tip to ring (or across the transmission lead simplex) of the subscriber interface. Possible values: **Set**, **Not set**. Default: Set.
Load/Non Load	This option menu can be used to select whether the transmit equalizer mast be loaded or non-loaded distribution cable. Possible values: **N**, **L**. Default: N.
Impedance	The transmit and receive impedance parameter selects the termination impedance of the channel unit. Possible values: **150**, **600**, **1200**. Default: 600.
-7 dB (J3)	When the **Black** option is selected, the channel unit supports an input TLP range of -15.0 to 1 dB. When the **White** option is selected, the channel unit supports an input TLP range of -8.0 to 8.5 dB. Possible values: **Black**, **White**. Default: Black.
Slope	This slider can be used to adjust the frequency response of the equalizer. Possible values: **0** ... **15**, step 1. Default: 0.

Service Details (Parameters)	Description
Bandwidth (BW)	This slider can be used to control the frequency response characteristic of the transmit equalizer. Possible values: **0** ... **15**, step 1. Default: 0.
Height	This slider can be used to control the amplitude of the transmit equalizer's transfer function. Possible values: **0** ... **15**, step 1. Default: 0.
Receive Attenuator	This slider can be used to define the receive attenuator parameter. Possible values: **0** ... **16.5**, step 0.1. Default: 16.5.
Transmit Attenuator	This slider can be used to define the transmit attenuator parameter. Possible values: **0** ... **16.5**, step 0.1. Default: 16.5.

6.2.4.19 FXO Service Details window

Overview

The FXO (foreign exchange office) function is used for a non locally or locally switched loop- or ground-start application. It is applicable to the SPQ442 channel unit.

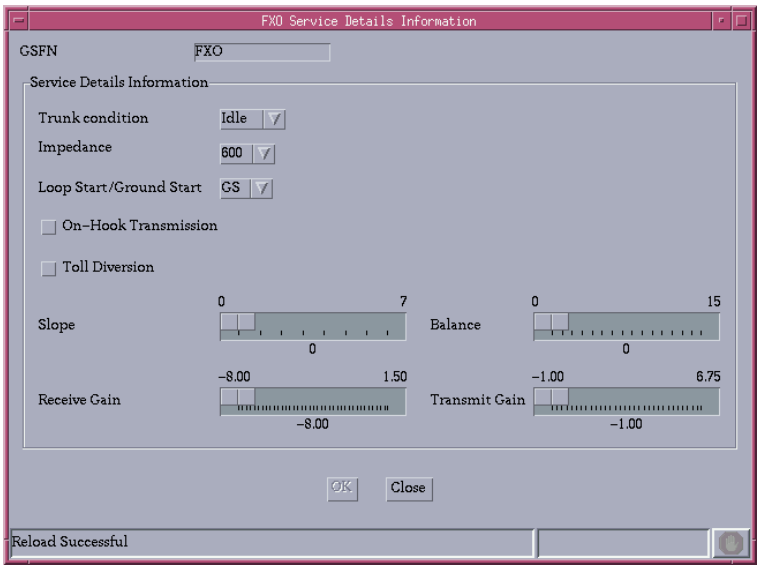

Figure 6-27 Logical DS0 window (FXO)

Service Details (Parameters)	Description
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.
Impedance	The transmit and receive impedance parameter selects the termination impedance of the channel unit. Possible values: **600**, **900**. Default: 600.
Loop Start/ Ground Start	This option menu can be used to define whether loop start or ground start is used. Possible values: **LS**, **GS**. Default: GS.
On-Hook Transmission	When a check mark is set, the channel unit is configured for full-time on-hook transmission. Possible values: **Set**, **Not set**. Default: Not set.
Toll Diversion	This check box can be used to prevent/allow that the channel unit transmit the reverse loop current feed signalling state toward the digital facility. Possible values: **Set**, **Not set**. Default: Not set.
Slope	This slider can be used to adjust the frequency response of the equalizer. Possible values: **0** ... **7**, step 1. Default: 0.
Balance	This slider can be used to specify the precision network for the 4-wire to 2-wire hybrid balance function. Possible values: **0** ... **15**, step 1. Default: 0.
Receive Gain	This slider can be used to define the receive gain parameter. Possible values: **-8** ... **1.5**, step 0.25. Default: -8.
Transmit Gain	This slider can be used to define the transmit gain parameter. Possible values: **-1** ... **6.75**, step 0.25. Default: -1.

6.2.4.20 OCU[1, 2, 3] Service Details windows

Overview

The OCU[1,2,3] (office channel unit dataport (1, 2 or 4 data rates)) is applicable to the SPQ452 dual OCU data port which is primarily used in an end-link of a DDS private line data service.

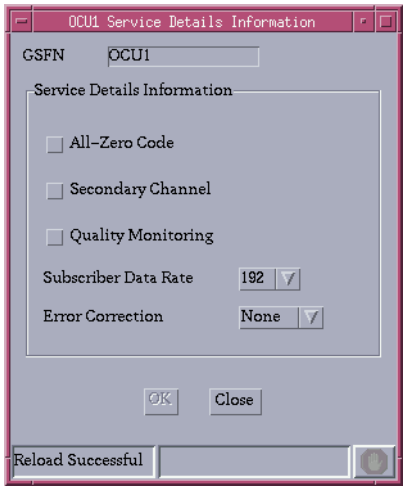

Figure 6-28 Logical DS0 window (OCU 1)

Service Details (Parameters)	Description
All-Zero Code	All-Zero Code allowed: when a check mark is set, the channel unit will not allow a word containing 8 zeros to be sent toward the digital facility. Possible values: OCU1, OCU2: {**Set, Not set**}. Default: Not set OCU3: {**Set**}.
Secondary channel	Secondary channel used: when a check mark is set, the channel unit supports a low-speed telemetry channel in the subscriber's data bits. Possible values: OCU1, OCU2: {**Set, Not set**}. Default: Not set OCU3: {**Set**}.
Quality Monitoring	When a check mark is set, the channel unit will send abnormal station code to the network upon detecting an excessive number of bipolar violations from the loop. Possible values: OCU1, OCU2: {**Set, Not set**}. Default: Not set OCU3: {**Not set**}.

Service Details (Parameters)	Description
Subscriber Data Rate	This option menu can be used to specify the subscriber data rate, in kbps, for the subscriber interface. Possible values: OCU1: **24**, **48**, **96**, **192**; OCU2: **384**, **560**; OCU3: **640**. Default: 192 for OCU1, 560 for OCU2, 640 for OCU3.
Error Correction	This option menu can be used to select the error correction technique for the DS0 path. The **MVEC** option is applicable only for subscriber data rates of 19.2 kbps and less. **SCEC** requires two DS0 time slots. Possible values: OCU1: {**NONE**, **MVEC**}. Default: NONE OCU2, OCU3: {**NONE**, **SCEC**}. Default: NONE.

6.2.4.21 SW56 Service Details window

Overview

The SW56 (Switched 56 kbps DDS service) is also applicable to the SPQ452 dual OCU dataport including enhanced service options to the DDS.

Figure 6-29 Logical DS0 window (SW56)

Service Details (Parameters)	Description
Enhanced Switch	When the enhanced switched 56-kbps check mark is set, the channel unit supports the transmission of call progress tones to the customer premises equipment (CPE). Possible values: **Set**, **Not set.** Default: **Not set.**
AB Signaling	The AB signaling parameter check mark is normally not set, which causes the channel unit to operate in the software signaling mode. Possible values: **Set**, **Not set.** Default: **Not set.**

Service Details (Parameters)	Description
Quality Monitoring	When the quality monitoring parameter check mark is set, the channel unit will send abnormal station code to the network upon detecting an excessive number of bipolar violations from the loop. Possible values: **Set**, **Not set.** Default: **Not set.**

6.2.4.22 TD[O, S][A, B, C, D] Service Details windows

Overview

TD[O, S][A, B, C, D]: 4-wire tandem office and 4-wire tandem subscriber, 4-state (Type II, Type I) and 2-state (Type II, Type I). The tandem function is used for providing a back-to-back carrier interface for loop- or ground-start circuits. It is applicable to the SPQ444 channel unit.

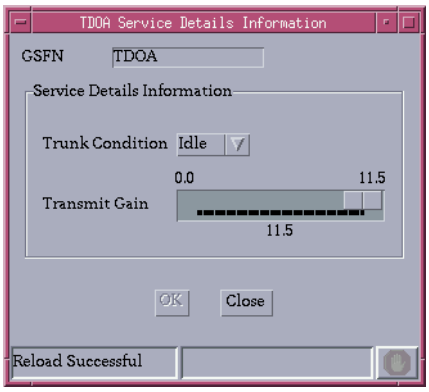

Figure 6-30 Logical DS0 window (TDOA)

Service Details (Parameters)	Description
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.
Transmit Attenuator	This slider can be used to define the transmit attenuator parameter. Possible values: **0** ... **11.6**, step 0.1. Default: 11.6.

6.2.4.23 TO4 Service Details window

Overview

The T04 (4-wire transmission only) function is used in voice or data private lines. It is applicable to the AUA41B channel unit which may be used in the MDS2/MDS2B, interfacing with a switch, other transmission equipment, data equipment, or cable.

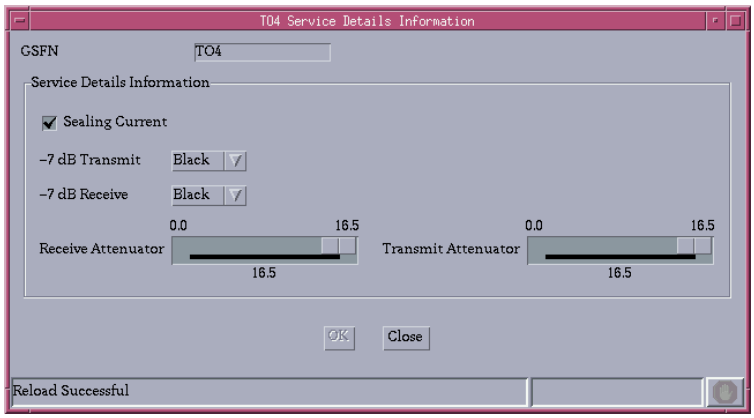

Figure 6-31 Logical DS0 window (TO4)

Service Details (Parameters)	Description
Sealing Current	When a check mark is set, the channel unit applies a current from tip to ring (or across the transmission lead simplex) of the subscriber interface. Possible values: **Set**, **Not set**. Default: Set.
-7 dB Transmit	This option menu can be used to control a 7 dB pad in the transmit path. When the **Black** option is selected, the channel unit supports an input TLP range of -9.0 to 7.5 dB. When the **White** option is selected, the channel unit supports an input TLP range of -16.0 to 0.5 dB. Possible values: **Black**, **White**. Default: Black.
-7 dB Receive	This option menu can be used to control a 7 dB pad in the receive path. When the **Black** option is selected, the channel unit supports an input TLP range of -16 to 0 dB. When the **White** option is selected, the channel unit supports an input TLP range of -9.5 to 7 dB. Possible values: **Black**, **White**. Default: Black.
Receive Attenuator	This slider can be used to define the receive attenuator parameter. Possible values: **0** ... **16.5**, step 0.1. Default: 16.5.
Transmit Attenuator	This slider can be used to define the transmit attenuator parameter. Possible values: **0** ... **16.5**, step 0.1. Default: 16.5.

6.2.4.24 FXOD Service Details window

The FXOD (foreign exchange office (GS, LS) is intended for use in non locally switched special services (ground start, loop start). This GSFN is only available for NE R1.7.0.

Figure 6-32 Logical DS0 window (FXOD)

Service Details (Parameters)	Description
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signaling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.
Loop Start/ Ground Start	This option menu can be used to define whether loop start or ground start is used. Possible values: **LS**, **GS**. Default: GS.

6.2.4.25 DPT Service Details windows

Overview

The DPT (dial-pulse terminating) function is used for a direct inward dial (DID) with either dial pulse or multi-frequency addressing. It is applicable to the SPQ442 channel unit which provides four channels of service which can be used for DID trunks.

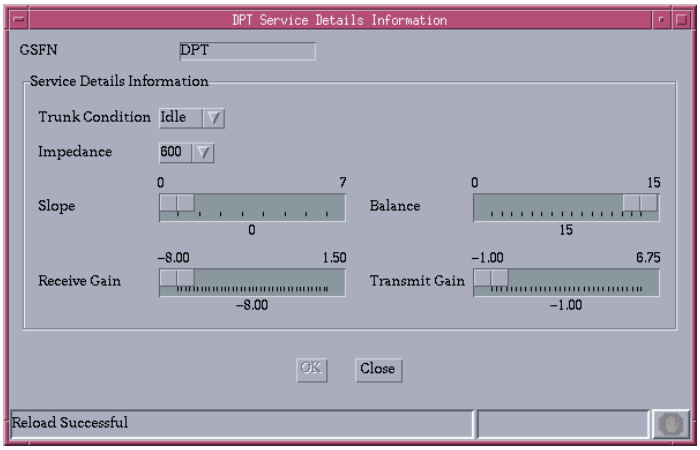

Figure 6-33 Logical DS0 window (DPT)

Service Details (Parameters)	Description
Trunk Condition	This option menu can be used to determine whether the AP or CU sets the signalling state toward the CO to the **Idle** state, **Busy** or the DS0 remote alarm indication (**Rai**) code during a fault condition. Default: Idle.
Impedance	The transmit and receive impedance parameter selects the termination impedance of the channel unit. Possible values: **600**, **900**. Default: 600.
Slope	This slider can be used to adjust the frequency response of the equalizer. Possible values: **0** ... **7**, step 1. Default: 0.
Balance	This slider can be used to specify the precision network for the 4-wire-to-2-wire hybrid balance function. Possible values: **0** ... **15**, step 1. Default: 15.
Receive Gain	This slider can be used to define the receive gain parameter. Possible values: **-1** ... **1.5**, step 0.25. Default: -1.
Transmit Gain	This slider can be used to define the transmit gain parameter. Possible values: **-1** ... **6.75**, step 0.25. Default: -1.

6.2.4.26 Overview of APs and GSFNs

Overview

The following table provides an overview of the general service functions and the compatible AP/CU.

GSFN	Apparatus codes
DFLT, 2LS	LPA300, LPA350, LPA380, SPQ440C
2GS	LPA350, LPA380, SPQ440C
2FX, 2FXLS, 2RVO, 2NOS	LPA350, LPA380
ISDN	LPU116
COIN	LPA350, (lines 1-16 only)
4DO	(ROC)
DATA	AUA200 DPX, AUA232
EBS	SPQ429, SPQ328
AC	AUA45B
LR	AUA75
NO1, NO2	MCU5205, MCU5405
BRI	AUA293 ISDN BRITE
TO	SPQ442, SPQ443, LPA200
DPT	SPQ442, SPQ456, LPA200
FXO	SPQ442, LPA200
DX4[N,R], FX[S,T][1,2,3,5], ETO4, TO4	AUA41B
FX[O,P][1,2,3,5], TD[O,S][A,B,C,D]	SPQ444
FXS	SPQ443
FXS0, EM0 (NE R1.7.0)	-
EM4[C,H], PLR[1,2]	SPQ454
FXOD (NE R1.7.0)	-
OCU[1,2,3]	SPQ452
SW56	SPQ452, SPQ334
OCU0 (NE R1.7.0)	-

6.2.4.27 Remove VRT/VB logical DS0 (Subscriber)

There are several ways to initiate the deletion of logical DS0s. The corresponding button ***Remove Logical DS0...*** exists in the *CU*, *AP* and *Logical DS0 List* windows (this button is disabled in *CU* and *AP* windows for R1.5).

Procedure

Complete the following procedure to remove a logical DS0:

1. Select the logical DS0 in the corresponding list.
2. Click on ***Remove Logical DS0...***. A *Warning* window pops up:

Logical DS0 will be deleted, OK to proceed?

NOTE:
If the chosen logical DS0 has been configured as red lined (cf. Chapter 6.2.4.5, page 6-39) the following *Warning* message will pop up:

Redlined Logical DS0 will be deleted, OK to proceed?

If you decide to continue, the AEM will send a delete message to the NE.

6.3 Service provisioning (data)

The data service functionality covers the connection establishment process between an ADSL subscriber interface and an E3 network interface.

This functionality is performed in the same way for all the AFM releases managed by AEM R1.7.

Pre-provisioning of ATM links and cross-connections is possible (i.e. if the packs and ports are pre-provisioned the ATM links and cross-connections can also be pre-provisioned even if the related card is not inserted).

This chapter describes the creation, modification and deletion of ATM virtual path/channel links and cross-connections in an NE.

6.3.1 ATM Cross Connections List window

This window displays all ATM cross-connections within the NE. It can also be used to add/edit/remove cross-connections.

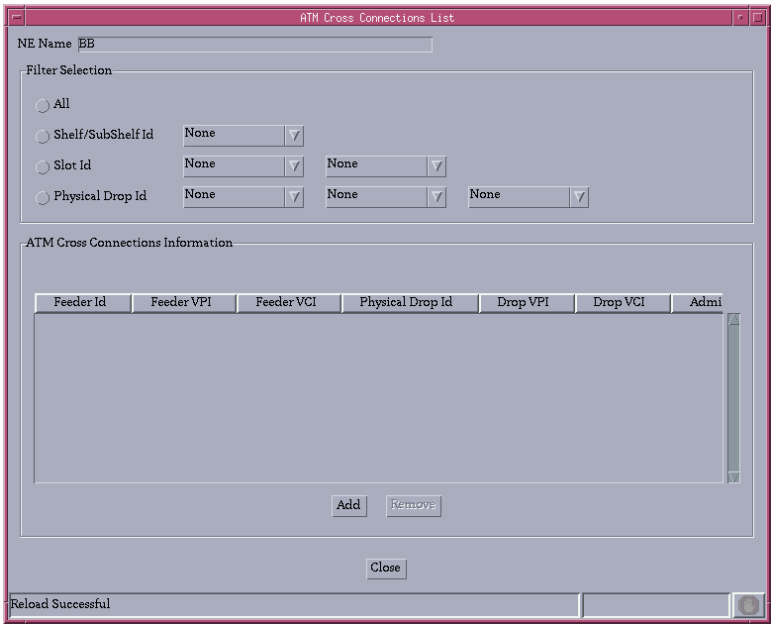

Figure 6-34 ATM Cross Connections List window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Filter Selection	Four radio buttons and six related option menus can be used to select the filter for displaying the cross-connections in the list below. ■ **All**: This button can be used to list all cross-connections within the NE. ■ **Shelf/Subshelf Id**: This button can be used to list all cross-connections within a shelf or subshelf. The related option menu provides the following values: main shelf id, ids of all created subshelves, None. ■ **Slot Id**: This button can be used to list all cross-connections within a slot. The related two option menus provide the following values: first menu: main shelf id, ids of all created subshelves, None. second menu: ADSL slots related to the selection in the first option menu, None. ■ **Physical Drop Id**: This button can be used to list all cross-connections of a drop. The related three option menus provide the following values: first menu: main shelf id, ids of all created subshelves, None. second menu: ADSL slots related to the selection in the first option menu, None. third menu: drop numbers inside the selected slot, None. Selecting a radio button updates the cross-connection table except None is selected in one of the related option menus. The same will happen when a value (except None) is selected in the right-most option menu: the corresponding radio button is activated and the cross-connection list is updated. Please note the following relation between the associated option menus: Physical drop can be selected only if a slot id has been selected beforehand and a slot id can be selected only if a shelf/subshelf id has been selected beforehand.

Parameters/ Buttons	Description
ATM Cross-Connections Information	This list shows the cross-connection parameters. The number of displayed cross-connections depends on the selected filter (see radio buttons above). **Feeder Id**: Shows the feeder involved in the ATM cross-connection (e.g. ds3-1-16-1). **Feeder VPI**: Shows the VPI used to create the cross-connection on the feeder side. **Feeder VCI**: Shows the VCI used to create the cross-connection on the feeder side. This field is empty if the row represents a VP cross-connection. **Physical Drop Id**: Indicates the VCI used to create the cross-connection on the feeder side. It will be the drop selected in this window (e.g. drop-1-5-4). NOTE: If no drop is created "not defined" will be displayed. In this case the ***Add/Edit*** operation is disabled. **Drop VPI**: Shows the VPI used to create the cross-connection on the drop side. **Drop VCI:** Shows the VCI used to create the cross-connection on the drop side. This field can be empty if the row is a VP cross-connection. **Administrative State:** This field shows the current administrative state of the cross-connection: Locked, Unlocked. The button (***Add***/***Edit***) provides access to the *ATM Cross-Connection* window (cf. Chapter 6.3.2, page 6-68). If a cross-connection has been selected: ***Edit*** if no cross-connection has been selected: ***Add***. NOTE: This button is disabled if the selected cross-connection is not associated with a drop. The ***Remove*** button can be used to remove a selected cross-connection. This button is enabled only if a cross-connection is selected.

6.3.2 ATM Cross Connections window

This window is used to create, remove or edit ATM cross-connections over an ADSL drop.

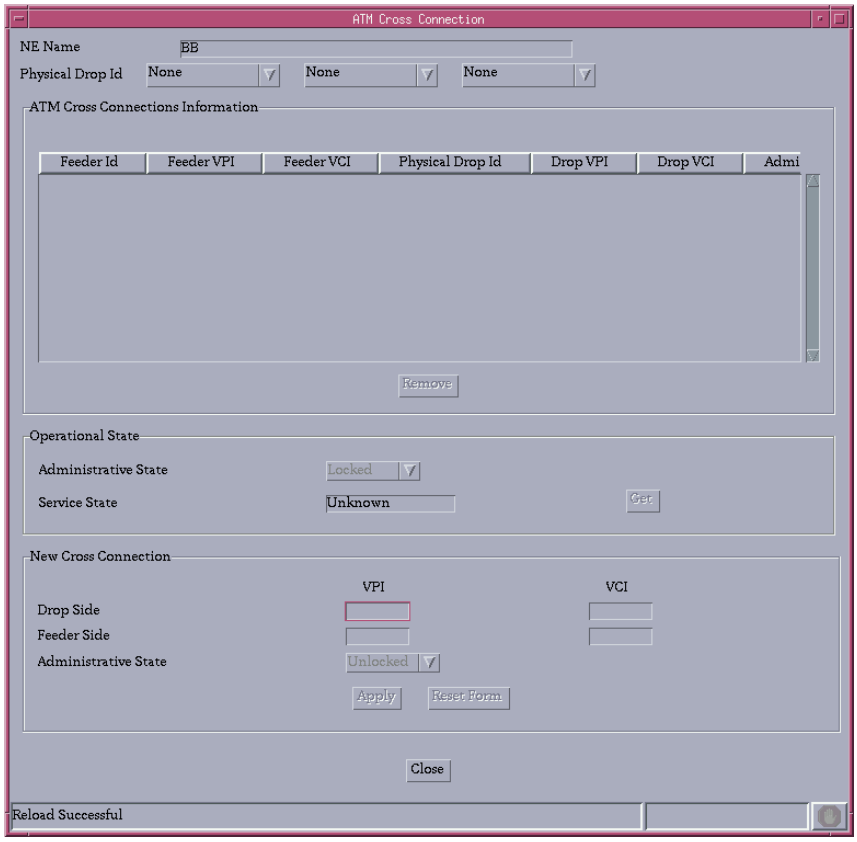

Figure 6-35 ATM Cross Connection window

The following table shows the view/edit options of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Physical Drop Id	The ADSL drop id is shown by means of three option menus: ■ The first one contains the drop-shelf Format: drop-1 or subdrop-{1, 8}.None is also allowed. ■ The second one contains the slot number inside the NE, but only for slots in which an ADSL pack is provisioned. Format: {1, 16} for main shelf or {1, 8} for subshelf. None is also allowed. ■ The third one contains the drop number inside the slot indicated in the previous list {1, x}. Format: drop-shelf-slot-port. Possible values: drop-1-{1, 16}-{1, x}. (depending on the ADSL type x can be 4 or 8). These option menus show the drop selected in the previous window. The option menus can also be used to select another drop.
ATM Cross-Connections Information	This list shows the cross-connection parameters. The number of displayed cross-connections depends on the selected filter (see option menus above). **Feeder Id**: Shows the feeder involved in the ATM cross-connection. **Feeder VPI**: Shows the VPI used to create the cross-connection on the feeder side. **Feeder VCI**: Shows the VCI used to create the cross-connection on the feeder side. This field is empty if the row represents a VP cross-connection. **Physical Drop Id**: Indicates the physical drop used to create the cross-connection on the feeder side. It will be the drop selected in this window. **Drop VPI**: Shows the VPI used to create the cross-connection on the drop side. **Drop VCI:** Shows the drop VCI used to create the cross-connection on the drop side. This field can be empty if the row is a VP cross-connection. **Administrative State:** This field shows the current administrative state of the cross-connection: Locked, Unlocked. The ***Remove*** button can be used to remove a selected cross-connection. This button is enabled only if a cross-connection is selected.

Parameters/ Buttons	Description
Operational State	The option menu **Administrative State** provides the possible states that can be used: Locked and Unlocked. NOTE: The NE rejects the change from Locked to Locked or from Unlocked to Unlocked. Trying to do this provokes a command unsuccessful answer. The field **Service State** shows the state of the ADSL drop obtained (on demand) by the user. Possible values: Enabled, Disabled, Unknown. The ***Get*** button can be used to update the display of the Service State.
New Cross Connection	**Feeder Side (VPI)**: This field is used to define the VPI used to create the cross-connection on the feeder side. Possible values: {1, 255}. **Feeder Side (VCI)**: This field is used to define the VCI used to create the cross-connection on the feeder side. Possible values: {33, 1023}. **Drop Side (VPI)**: This field is used to define the VPI used to create the cross-connection on the drop side. Possible values: {0, 255}. **Drop Side (VCI)**: This field is used to define the VCI used to create the cross-connection on the drop side. Possible values: {1, 1023}. This field can be empty if the cross-connection is at VCI level. **Administrative State:** This option menu is used to define the administrative state for the NE cross-connection. Possible values: Locked, Unlocked (default). The ***Reset Form*** button can be used to reset all values in this field. The ***Apply*** button is used to create a new cross-connection.

6.3.3 Add an ATM cross-connection

Overview

The field New Cross Connection in the *ATM Cross Connection* window is used to define the parameters for new cross-connections over an ADSL drop.

There are four possibilities to launch the *ATM Cross Connection* window:

- via *ATM Cross Connection List* window (***Add***) - see below
- via *ATM Cross Connection List* window (***Edit***)
- via *ADSL AP* window (***ATM Cross-Connections***)
- via *ADSL AP* window (***Edit Drop***) and *ADSL Drop* window (***ATM Cross-Connections***).

Procedure

Complete the following procedure to add an ATM cross-connection.

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***List -> ATM Cross-Connections*** via the cursor menu. The *ATM Cross Connection List* window pops up (cf. Chapter 6.3.1, page 6-65).

2. Click on ***Add***. The *ATM Cross Connection* window pops up (cf. Chapter 6.3.2, page 6-68).

3. Use the option menus **Physical Drop Id** to select the ADSL drop in which you want to create a new ATM cross-connection.
(If the *ATM Cross Connection* window has been launched in another way (see above) a ADSL Drop is already selected.)
The list **ATM Cross-Connection Information** displays all cross-connections for the selected ADSL drop.

If you want to ...	then ...
add a VP cross-connection	define the **Feeder VPI** and the **Drop VPI** in the field **New Cross Connection**, change the administrative state to Unlocked (if required) and click on ***Apply***.
add a VC cross-connection	define the **Feeder VPI, Feeder VCI, Drop VPI** and **Drop VCI** in the field **New Cross Connection**, change the administrative state to Unlocked (if required) and click on ***Apply***.

4. Click on ***Close*** to exit the window

6.3.4 Modify an ATM cross-connection

Procedure Complete the following procedure to modify an ATM cross-connection.

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***List -> ATM Cross-Connections*** via the cursor menu. The *ATM Cross Connection List* window pops up (cf. Chapter 6.3.1, page 6-65).
2.	Use the radio buttons and the related option menus to select the filter for the display of the cross-connection table.
3.	Click on the cross-connection to be changed and press ***Edit***. The *ATM Cross Connection* window pops up (cf. Chapter 6.3.2, page 6-68). This window can also be reached from the *ADSL Pack* window (cf. Chapter 5.5.5.29, page 5-104) or from the *ADSL Drop* window (cf. Chapter 5.5.5.31, page 5-109) via ***ATM Cross-Connections***.
4.	Use the option menu **Administrative State** to change this state. If the administrative state has been changed from “Unlocked” to “Locked” a *Warning* window pops up: **Changing the administrative state of an ATM cross connection may be service affecting. Do you want to continue?**
5.	Click on ***Close*** to exit the window.

6.3.5 Remove an ATM cross-connection

Procedure Complete the following procedure to remove an ATM cross-connection.

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***List -> ATM Cross-Connections*** via the cursor menu. The *ATM Cross Connection List* window pops up (cf. Chapter 6.3.1, page 6-65).
2.	Use the radio buttons and the related option menus to select the filter for the display of the cross-connection table.
3.	Click on the cross-connection to be removed and press ***Remove***. If the cross-connection is in service a *Warning* window pops up: **Removing an ATM cross connection may be service affecting. Do you want to continue?**

If you decide to continue, the AEM will send a delete message to the NE.

4. Click on ***Close*** to exit the window.

Fault management and maintenance

7

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Fault management and maintenance

7

7.1 Overview

This chapter provides you with informations about

- basics on the alarm management
- basics on alarms
- maintenance actions if certain alarms are pending
- using the Alarm Viewer
- performing test actions with the test management
- basics on information management (e.g. connection states).

7.2 Alarm management

7.2.1 Overview

The main function of the alarm management is to manage the *AnyMedia*® Element Manager (AEM) and network element (NE) related alarms that are registered in the element manager system (EMS).. For the list of the alarms generated by the management system refer to Chapter 7.5.4, page 7-41. For the list of alarms concerning network element refer to Chapter 7.5.5, page 7-43.

Once the communication connection between the AEM and an NE is established, the AEM clears the "not-connected" NE alarm indication (if it exist) and starts an alarms and environment alarms synchronization process between the AEM alarm database and active NE alarms. Finally the AEM will try to update its view of NE configuration data and will start a synchronization process between the AEM data set and the NE configuration information (NE NVDS). The NE database is always the master.

The database does not maintain the alarm history, it only stores the current alarm statuses. An alarm can be in one of the following states:

- Severity states:
  - raised
  - cleared
- Acknowledgment states:
  - acknowledged
  - not acknowledged.

The main responsibilities of the alarm management subsystem (AMS) are the following:

- maintain up-to-date alarm information
- notify alarm changes to alarm clients
- provide access to the current alarm data
- manage alarm raising
- manage cleared alarms
- manage acknowledgment of alarms
- synchronization of the alarm data per NE
- AEM alarm log handling
- periodical deletion of cleared alarms.

7.2.2 Maintain up-to-date alarm information

During the alarm life time, the AEM updates the following information:

- the date and time of the last severity change (Date&Time Last Change)
- the last alarm severity change (Perceived Severity)
- the last alarm acknowledge status change (Acknowledge State)
- the last user id which has acknowledged an alarm (Acknowledge User)
- the number of raises the alarm has been raised between the first raised time and the actual time (Number Raises)
- the last alarm correlation state change (Correlation State).

During an alarm life the severity status can change from raised to cleared and vice versa.

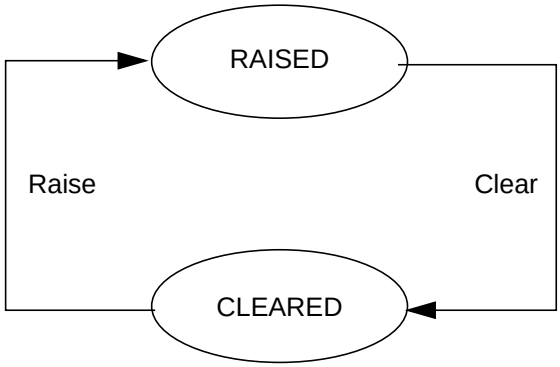

Figure 7-1 Life cycle of an alarm

7.2.3 Alarm notification to the user

Overview

Whenever incorrect data (out-of-range values, inappropriate value types, etc.) is entered at the graphical user interface (GUI), a new alarm occurs or the status of any alarm changes to raised again, an alarm message is reported to the AEM. The alarms are indicated, if defined, visually.

Visual alarm indication

The occurrence of a new alarm of a defined severity (default value: critical) is visually indicated in different ways:

- Notification icon displayed in the AEM access bar.

  This icon consists of a flag. If new alarms are received the flag is raised and an audible signal is issued. If the user clicks on the icon the flag goes down.

- Via the Network Browser

  The Network Browser displays all groups and NEs created in the AEM by the use of icons (cf. Figure 7-8, page 7-26).

  The icons change their color to reflect the highest severity alarm (critical, major, minor, indeterminate or warning alarms). The highest severity alarm of a group is the highest severity alarm of all the alarms of its child groups and NEs. The alarm status color is in accordance with the alarm viewer color set (red for critical and major; yellow for minor; white for indeterminate and warning).

  — Select ***Group*** in the Network Browser and ***Alarm Monitoring*** in the cursor menu to look at the group-specific alarms.

  — Select ***NE*** in the Network Browser and ***Alarm Monitoring*** in the cursor menu to look at the NE-specific alarms.

- Shelf View Window

  This window (cf. Figure 7-2, page 7-6) provides general inventory, provisioning and alarm information (through the circuit packs LEDs). Each slot shows the card type inserted and its alarms (via a red FLT LED, if available). If the slot is empty, no card will be shown.

  See table below for the list of LEDs provided in each pack. The table describes the color used when the LED is ON or blinking. If the LED is OFF the color black is used.

Table 7-1 LED meanings

Pack	LED	Color	Meanings
IO-DS1	FLT	red	■ Lit during pack failure ■ Flashes when the pack executes off-line self-test.
	ACT	green	Lit when the pack is service-active.
	CLF1	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 1.
	CLF2	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 2.
	CLF3	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 3.
	CLF4	yellow	Lit when a fault or facility alarm occurs on the in-service received DS1 port 4.
COMDAC	FLT	red	■ Lit when a fault is detected on the pack. ■ Flashes during software download and turn-up.
	ACT	green	Indicates that this COMDAC is active.
	CR	red	Lit when the highest severity alarm is critical.
	MJ	red	Lit when the highest severity alarm is major.
	MN	yellow	Lit when the highest severity alarm is minor.
	NE	yellow	Lit when the source of the fault or abnormal condition is near-end.
	FE	yellow	Lit when the source of the fault or abnormal condition is far-end.
CTU	FLT	red	■ Lit when a fault is detected on the pack ■ Flashes on turn-up.
	ACT	green	Lit when a test is in progress.
	MISC	yellow	Lit when one of the eight miscellaneous alarm inputs is active.
	ACO	green	For future use

Table 7-1 LED meanings

Pack	LED	Color	Meanings
All Application Packs	FLT	red	■ Lit when a fault is detected on the pack ■ Flashes when the AP executes off-line shelf-tests.
AP (MDSU)	FLT	red	Lit when a fault is detected on the pack.
	LNK	yellow	■ Lit when loss of clock/sync signal is detected ■ Flashes when incorrect MDSU/MDS2/MDS2B side association is detected.
IAT-Server (NE R1.7.0)	FLT	red	Lit when a fault is detected on the pack.
	CFL	yellow	Lit when a failure of either IAT/RT carrier link from the IAT to the IATS is detected.
	CFG	yellow	Lit when a configuration error or mismatch is detected, as follows: ■ the IATS is placed in an AP slot not provisioned for the IAT server pack type ■ the IATS faceplate DS1 cable is disconnected ■ there is a mismatch between the host T0 provisioning and the IAT phantom CU equipqge (IAT01 only).
	IAT	yellow	Lit when a failure of either linr from the IATS to the IAT (IAT/RT link working) is detected.
AFM	FLT	red	Lit when a fault is detected on the pack.
	ACT	green	Indicates that this AFM is active.
	CR-MJ	red	Lit when the highest severity alarm is critical or major.
	MN	yellow	Lit when the highest severity alarm is minor.
	CLF1	yellow	Lit when a fault or facility alarm occurs on the in-service received D1 port 1.
	CLF2	yellow	Lit when a fault or facility alarm occurs on the in-service received D1 port 2.

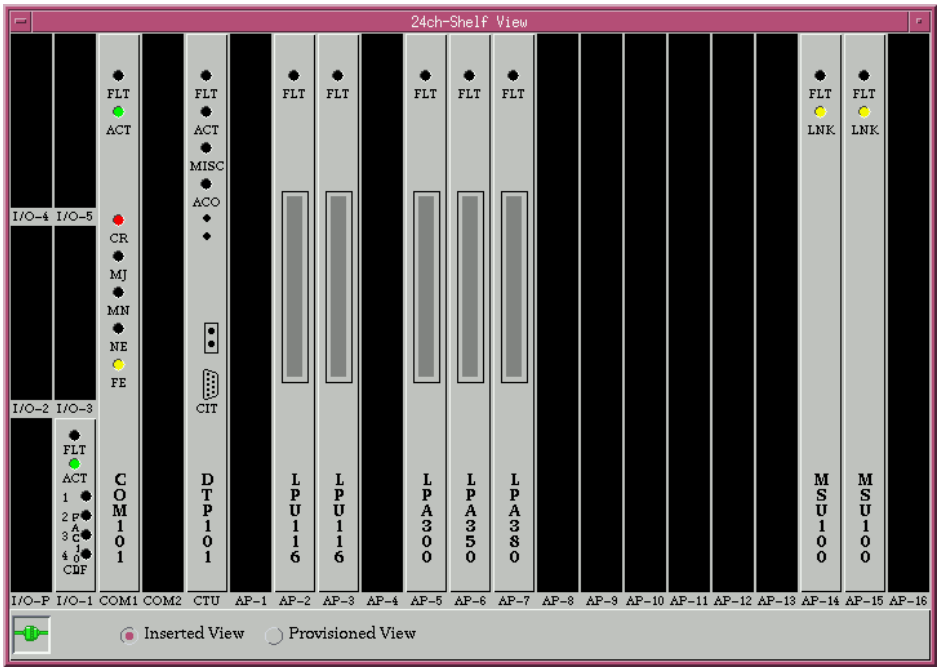

Figure 7-2 Example of a shelf view

- MDS2 Shelf View Window

Pack	LED	Color	Meanings
MSC	FLT	red	Lit when a fault is detected on the pack.
	LNK	yellow	■ Lit when loss of clock/sync signal is detected ■ Flashes when incorrect MDSU/MDS2/MDS2B side association is detected.
PTU	FLT	red	Lit when a fault is detected on the pack.
	TST	green	Lit when a channel served by the PTU is under test.
AFM	FLT	red	Lit when a fault is detected on the pack.
	ACT	green	Indicates that this AFM is active.
	CR-MJ	red	Lit when the highest severity alarm is critical or major.
	MN	yellow	Lit when the highest severity alarm is minor.
	CLF1	yellow	Lit when a fault or facility alarm occurs on the in-service received E1 port 1.
	CLF2	yellow	Lit when a fault or facility alarm occurs on the in-service received E1 port 2.

Alarm information

For more information on the reported alarm open the Alarm Viewer (cf. Chapter 7.3, page 7-10).

Alarm acknowledgment/clearance

Acknowledging alarms and clearing alarms is described in Chapter 7.3.5, page 7-24.

7.2.4 Provide access to the current alarm data

Alarm retrieval

The user can select lists of alarms filtered by several fields. Therefore the user specifies a selection criterion (cf. Chapter 7.3.4.3, page 7-19) that is taken by the AMS to make the appropriate filters. For instance, an user can request all the critical alarms of an NE, or all platform alarms, or all alarms which are service affecting and are raised at the same time.

The number of alarms stored in the alarm database can be retrieved, too. The total number of alarms can be retrieved as well as the number of alarms per severity (number of critical alarms, major, minor and indeterminate).

User domains

The user domain is the list of NEs and/or the AEM the user can manage. The user domains are applicable in the AMS to the alarm retrieval operations and to the alarm notification.

Each user can only request alarms and the number of alarms that are in the user's domain. The client and server security filters fill in this information. When the alarm retrieval operation arrives at the alarm server, in addition to the normal input data it also contains the user domain information added by the user interface.

7.2.5 Managing the raising of alarms

An alarm is raised by different types of agents (e.g. telephony and data) or by any object of the AEM. When an alarm is raised its state and the relevant transmitted data (cf. Chapter 7.5.2, page 7-39) are updated. The alarm information provided by these agents can be different and with different formats. The AEM will convert this information to a common format, this common format is based on the ITU-T Recommendation X.733 ITU-T.

Special care has to be taken if the alarm is raised repeatedly (see "Repetitive and fluctuating alarms"). In this case the already existing alarm is put into the raised state. The user acknowledge identification, if available, is removed from the alarm. This way a raised condition of an existing alarm is considered as a new raising (not a new alarm). The number of occurrences is increased every time the same alarm is raised.

Repetitive and fluctuating alarms

A repetitive alarm is an alarm that is raised several times before it is cleared. A fluctuating alarm is an alarm that is raised and cleared alternatively several times in a short period (at least less than the AEM constant for the cleared alarms, see Chapter 7.2.10, page 7-9).

To handle these alarms three fields are defined and maintained for each alarm:

- First Raised Time
- Last Changed Time
- Number of Occurrences.

The alarm viewer can obtain the following information:

- The "Number of Occurrences" is the number of times the alarm has been raised between when it was first raised and the current time (only the raised alarms are counted). In this period the alarm has been raised all the time or it may have been raised/cleared several times (it is not relevant to distinguish both cases).

Correlated/duplicated alarms

Alarms coming from the same NE through telephony and data agents (i.e. the same alarm reported via both controller cards) are correlated into a unique new alarm.

Although the result alarm is generated by the AEM, it is handled as an NE alarm.

The perceived severity of the result alarm is the highest severity value of the received source alarms. The service affecting of the result alarm will be the highest value of the received source alarms (where service affecting (SA) is the highest value and not service affecting (NSA) is the lowest).

7.2.6 Manage alarm acknowledgment

Alarms can only be acknowledged by a user at the user interface. It is possible to acknowledge all alarms types. If an alarm is acknowledged its state is updated accordingly and the user identification is registered. Acknowledging an alarm causes a change to the alarm database. Therefore the alarm was logged before in the action log. It is possible to acknowledge an alarm that has already been acknowledged. The user identification and the new acknowledge time are registered as well, overwriting the previous acknowledge data.

7.2.7 Managing the clearing of alarms

General

The NE alarms are cleared by the NE-AMS. Platform alarms are cleared automatically (e.g. NE-AEM association alarms) or by a user at the user interface (e.g. log alarms). Users can only clear specific platform alarms. Users cannot clear the association alarms for the NE alarms. When an alarm is cleared its severity is updated and the time is registered, too. Clearing an alarm causes a change to the alarm database. Therefore the alarm is logged beforehand in the alarms log (if the user clears an alarm this will be logged in the action log; if an alarm is cleared by the NE it will be logged in the action log).

If the raise is newer, then it is a repetitive raise; the alarm state is set to the raised state. If the raise is older, then this message is ignored; the alarm state stays in the cleared state and the relevant data is updated.

Automatic alarm clearance

If network and platform alarms are cleared at their source the AEM clears them after a variable period of time in the AEM database. This period of time is set by de-

fault to 3 days and can be configured by the user via the system variable "AM.minimumClearPeriod" in the file $ANYMEDIAPATH/cfg/AnyMediaEM.cfg.

7.2.8 Alarm data synchronization

The AMS is responsible for the performance of NE alarm synchronization. To accomplish this, the AMS requests all the current alarms (normal and environment) of the NE that is being synchronized. Once the AMS has received these alarms it compares them with the alarms stored in the AEM alarm database. At the end of the synchronization the alarms stored in the alarm database must be the same as the alarms retrieved from the NE-AMS. Only one synchronization per NE can be performed at the same time. The AMS rejects any synchronization request for the same NE if the first one has still not finished.

7.2.9 AEM alarm log handling

If the user wants to know the different states throughout the alarm life the user will have to see the Log System (cf. Chapter 3.7, page 3-46) in which all alarm changes are stored.

Three types of logs are used. The AMS logs the following situations:

- Actions log
  - periodical database deletion of cleared alarm’s start and end.
  - alarm’s synchronization start and end.
  - periodical deletion of cleared alarms.
  - manual clear, manual acknowledge. The user identification that performs these actions is also logged.
  - automatically clear and acknowledgement.
- System-internal events log
  - exception conditions of the AMS.
- Alarms log
  - all alarms received from the NE.

7.2.10 Periodical deletion of cleared alarms

By default, alarms with *cleared* status are maintained for at least three days (including the current day) in the database. This value can be configured by the user via the system variable "AM.minimumClearPeriod" in the file $ANYMEDIAPATH/cfg/AnyMediaEM.cfg and is an integer multiple in days. The default value is 3 days.

The AEM performs a periodical deletion of the alarms with cleared status that exceed the specified time. This is done during the night-time period in low-load hours.

7.3 Alarm monitoring

7.3.1 General

Overview The AEM provides a process to monitor and display all alarms stored in the database. Using this system, the Alarm Viewer, the user is able to see many different alarm attributes such as Alarm Type, Severity, Status, Summary and the date and time when the alarm was raised. Via this tool the user can perform actions (e.g. acknowledge, clear) for some of these alarms.

What you will find In this chapter you will find the following information:

- Instructions for starting and terminating the alarm viewer (Chapter 7.3.2, page 7-10)
- Instructions for handling the alarm viewer (Chapter 7.3.3, page 7-11)
- Structure of the alarm viewer window (Chapter 7.3.3.3, page 7-14 and Chapter 7.3.3.4, page 7-15)
- System management (Chapter 7.3.4, page 7-18)
- Alarm viewer functions (Chapter 7.3.5, page 7-24).

7.3.2 Starting and terminating the Alarm Viewer

7.3.2.1 Starting the Alarm Viewer

The Alarm Viewer can be started in different ways:

- Clicking on the icon ***Alarm Viewer*** in the Access Bar (cf. Chapter 3.2.3).
- Clicking on ***Alarms*** in the menu bar of the other AEM applications (cf. Chapter 3.3.6). In this case only alarms of the NE which is selected in the Network Browser are shown.
- Selecting ***File -> New*** in the Alarm Viewer.

The displayed window has the title "Alarm Viewer" and maintains similarities with the other AEM's windows.

The *Alarm Viewer* window consists of the sections:

- Menu bar (File, Views, Filters, Actions, Help).
- Toolbar (buttons for Acknowledge, Clear, Reload and Print).
- General Information.
- Alarm table.

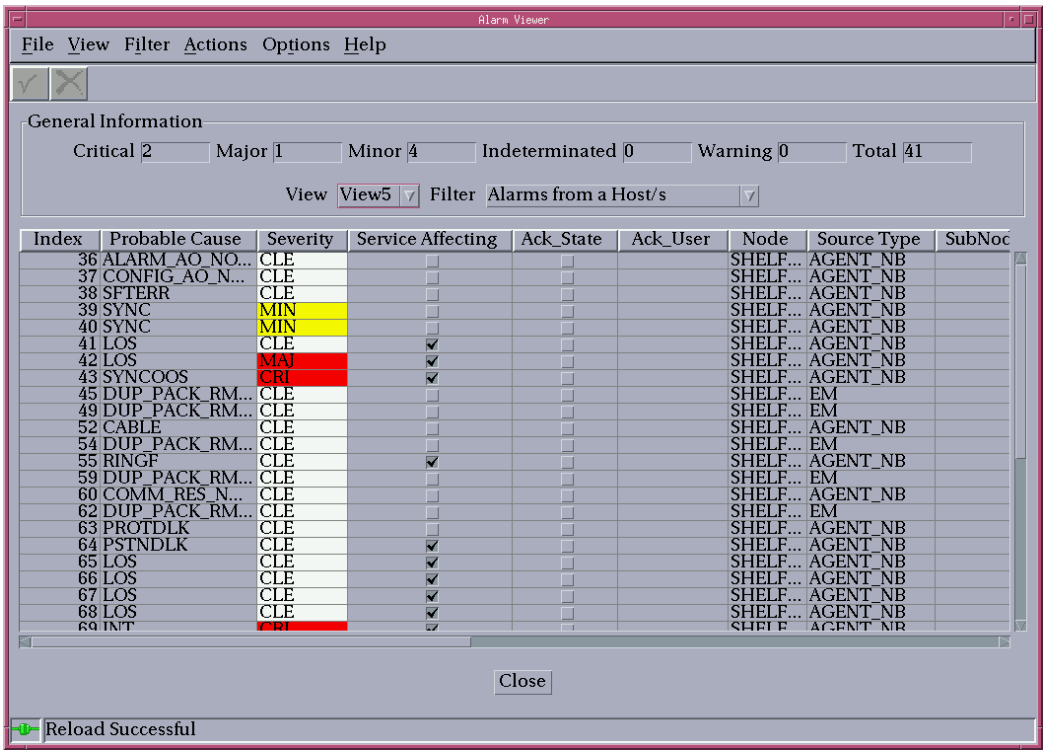
Alarm Viewer
File View Filter Actions Options Help
General Information
Critical 2 Major 1 Minor 4 Indeterminated 0 Warning 0 Total 41
View View5 Filter Alarms from a Host/s
Index Probable Cause Severity Service Affecting Ack_State Ack_User Node Source Type SubNoc
36 ALARM_AO_NO... CLE SHELF... AGENT_NB
37 CONFIG_AO_N... CLE SHELF... AGENT_NB
38 SFTERR CLE SHELF... AGENT_NB
39 SYNC MIN SHELF... AGENT_NB
40 SYNC MIN SHELF... AGENT_NB
41 LOS CLE SHELF... AGENT_NB
42 LOS MAJ SHELF... AGENT_NB
43 SYNCOOS CRI SHELF... AGENT_NB
45 DUP_PACK_RM... CLE SHELF... EM
49 DUP_PACK_RM... CLE SHELF... EM
52 CABLE CLE SHELF... AGENT_NB
54 DUP_PACK_RM... CLE SHELF... EM
55 RINGF CLE SHELF... AGENT_NB
59 DUP_PACK_RM... CLE SHELF... EM
60 COMM_RES_N... CLE SHELF... AGENT_NB
62 DUP_PACK_RM... CLE SHELF... EM
63 PROTDLK CLE SHELF... AGENT_NB
64 PSTNDLK CLE SHELF... AGENT_NB
65 LOS CLE SHELF... AGENT_NB
66 LOS CLE SHELF... AGENT_NB
67 LOS CLE SHELF... AGENT_NB
68 LOS CLE SHELF... AGENT_NB
Close
Reload Successful

Figure 7-3 Alarm Viewer window

7.3.2.2 Terminating the Alarm Viewer

The Alarm Viewer can be terminated as follows:

- By selecting ***File -> Exit*** in the Alarm Viewer menu to close all Alarm Viewers launched by the user.
- By clicking on ***Close*** button to close only the Alarm Viewer being in use.

Before quitting the Alarm Viewer the user is prompted for confirmation.

7.3.3 Performing Alarm Viewer functions

The Alarm Viewer provides different possibilities to perform internal functions and alarm management functions.

These functions can be initiated via:

- Menu
- Tool bar.

In most cases the choice depends on the user's personal preference.

7.3.3.1 Menu bar

The menu is used to activate alarm viewer functions.

NOTE:
The executable functions depend on your user privileges.

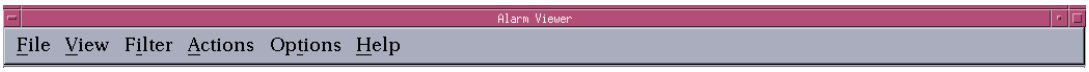

Figure 7-4 Menu bar of the Alarm Viewer

Selection is achieved

- By opening the menu by pressing the left mouse button and dragging the cursor to the desired option in the menu or
- By opening the menu via the keyboard by entering **`Alt`** plus the underlined letter of the relevant menu to open the menu option and then entering the letter underlined in the desired menu option.

Table 7-2 File menu

Menu display	Menu option	Meaning	Information in
New Print Close Exit	New	Launch a new instance of the Alarm Viewer.	Chapter 7.3.4.1, page 7-18
	Print -> Print Table	Print all alarm items displayed in the currently displayed table or save the items into an ASCII file. The Print dialog (cf. Chapter 3.5.2) is opened.	
	Print -> Preview	Show the Preview Frame window (cf. Chapter 3.5.3).	
	Print -> Print Window	Print a screen shot of the whole window. The Page Setup dialog is opened (cf. Chapter 3.5.1).	
	Close	Dismiss this window, but without closing other instances of the Alarm Viewer.	
	Exit	Close all Alarm Viewers opened by the user.	

Table 7-3 Views Menu

Menu display	Menu option	Meaning	Information in
View1 View2 View3 View 4 View 5 Reload	View1	Select a view from the predefined views.	Chapter 7.3.4.2, page 7-18
	View2		
	View3		
	View4		
	View 5		
	Reload	Display a fresh copy of the current information shown in the window. Only alarms which match the filter criteria will be included.	

Table 7-4 Filters menu

Menu display	Menu option	Meaning	Information in
Open Predefined Filters	Open...	Open a user-defined filter previously stored. No modifications allowed.	
	Predefined Filters Alarms for the last 24 hours Critical Raised Alarms Raised Alarms Alarms from a Host/s Critical Alarms not cleared Owned Acknowledge Alarms Clear Alarms All Acknowledge Alarms None Filter / All Alarms	Selection of filter criteria for displaying alarm information.	Chapter 7.3.4.3, page 7-19

Table 7-5 Actions menu

Menu display	Menu option	Meaning	Information in
Acknowledge Clear	Acknowledge	Acknowledge all selected alarms, their status will change to acknowledged.	Chapter 7.3.5, page 7-24
	Clear	Clear all selected alarms, their status will change to cleared.	

Table 7-6 Help menu

Menu display	Menu option	Meaning	Information in
Index On Window	Index	Display the index help, allowing the user to navigate through the AEM help information.	Chapter 7.3.4.5, page 7-23
	On Window	Display the help information of the window where the user is currently working.	

7.3.3.2 Toolbar

The toolbar contains often used functions and consists of four buttons:

Table 7-7 Toolbar

Function	Icon	Meaning
Acknowledge		Acknowledge all selected alarms. Their status immediately changes to acknowledged. The User_Ack is set to the login of the user who has acknowledged the alarm
Clear		Clear all selected alarms. Their status immediately changes to cleared.
Reload		Reload the actual alarms states into the table. Only alarms which match the filter criteria are included.
Print		Open a window for printing out all alarm items displayed in the currently displayed table.

7.3.3.3 General Information

The first section is a frame titled *General Information*, this frame includes controls showing information about the number of alarms of each alarm severity (in the domain where the user is working):

- Critical

  Displays the number of critical (CR) alarms.
- Major

  Displays the number of major (MJ) alarms.
- Minor

  Displays the number of minor (MN) alarms.
- Information

  Displays the number of information (IN) alarms.
- Total

  Displays the total number of alarms (all severities).

Additionally the frame contains two option menus, which show the filter (cf. Chapter 7.3.4.3, page 7-19) and view (cf. Chapter 7.3.4.2, page 7-18) currently being used. In this two option menus the user can select filters and views.

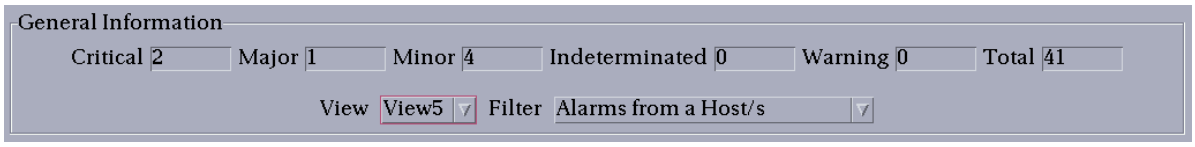

Figure 7-5 General Information frame

7.3.3.4 Alarm table

The last section in the Alarm Viewer window is a table that contains zero or more alarms belonging to a domain. This table allows the user to sort the alarms (cf. Chapter 7.3.3.4.2, page 7-17) by clicking on a specific table header. The user also can select them for acknowledgment or clearance. The mechanism to acknowledge or clear is the same, the user has to select one or more alarms. After selecting the alarms click on ***Acknowledge*** or ***Clear*** in the tool bar
or select ***Actions -> Acknowledge*** or ***Actions -> Clear*** via the menu bar.

Figure 7-6 Alarm list section

7.3.3.4.1 Alarm parameters

For each alarm the following alarm fields (depending on the selected view) can be displayed:

- Index

  Sequence number for each different alarm reported to the AEM (the maximum sequence number is 100 000).

- Probable Cause

  Identifies the probable cause of the alarm. This field contains a unique identification string for each alarm type.

- Severity

  Contains the default severity of the alarm.

  — Critical (*CR*)

  — Major (*MJ*)

  - Minor (*MN*)
  - Indeterminate (*IN*)
  - Warning (*WR*)
  - Cleared (*CL*).

- Service Affecting

  Specifies whether the alarm is subscriber service affecting or not.

  Possible values: Yes, No.

- Acknowledge State

  Reflects if the alarm has been acknowledged by a user.

- Acknowledge User

  The login of the last user who has acknowledged an alarm.

- Node

  A unique text label. For NE alarms, it is the NE-Name of the NE the alarm belongs to. For platform alarms, the string “EM” is used, except for communication alarms.

- Source Type

  Defines the type of alarm reporting source. For NE alarms, the agent type (e.g. NarrowBand, BroadBand, NarrowBand-Broadband) is used. For platform alarms, the string “EM” is used.

- Entity

  Object identifier referring to the alarm. Examples of objects are network elements, "ap-1-1", etc.

- Alarm Text

  Contains text briefly describing the alarm. The summary text is unique in the Element Manager.

- Description

  This field contains a full description of the alarm.

- Agent Description

  For the NE alarms, this field contains the description sent in the TL1 message or in the trap (without internationalizing). For platform alarms, this field is empty.

- Date&Time First Change

  Date and Time of the first severity change.

- Date&Time Last Change

  Date and Time of the last severity change in the life cycle of one alarm.

- Number Raises

  Number of times the alarm has been raised between the first raised time and the current time.

- Correlation State

  This field reflects if one alarm has been correlated or not. In the case of correlated alarms it also identifies if it is a source or a result alarm of the correlation process. For this release only duplicated alarms are considered.

7.3.3.4.2 Sorting alarms

Summary

The user can sort alarms by the different fields by clicking on the respective header. The sort can be ascending or descending order. The sort order is reversed by clicking on the respective header.

All alarm fields are sorted by alphanumeric order except date and time field.

Effects

The alarms are re-arranged according to the selected criteria.

Sorting alarms

Proceed as follows to sort the alarm display:

Step	Procedure
1.	Click on the header according to which the alarms are to be sorted. *Response:* The alarms are sorted according to the selected alarm field in ascending or descending order.
2.	Check if the list was sorted as desired. **Yes:** O.K. **No:** Continue with step 3.
3.	Click again on the header to sort the list in the reverse order. The sort can be in ascending or descending order, each time the user clicks on the same header again the list is sorted the other way.

7.3.4 System management functions

The general system management functions comprise the functions for file management, for defining view options and for getting help. These functions are contained in the following menus:

- File
- Views
- Filters
- Help.

7.3.4.1 File

In the file menu you can start the following actions:

- New

  Launch a new instance of the Alarm Viewer.

- Print

  (cf. Chapter 3.5)

- Close

  Close the active window, but without closing other instances of the Alarm Viewer. Same functionality as the Close button.

- Exit

  Close all Alarm Viewers opened by the user.

7.3.4.2 Views

Summary For displaying alarm lists you can select from four pre-defined views.

- View1:
  Index, Node, Entity, Severity, Date&Time Last Change, Alarm Text.
- View2:
  Index, Node, Entity, Severity, Date&Time Last Change.
- View3:
  Index, Node, Entity, Date&Time First Raise, Date&Time Last Change, Acknowledge User, Number Raises.
- View4:
  Index, Node, Entity, Severity, Date&Time Last Change, Correlation State.
- View5:
  All alarm fields.

Effects The alarms are rearranged according to the selected criteria.

Selecting Views

Proceed as follows to select the desired view option:

Step	Procedure
1.	Select ***Views -> ViewX*** (X = 1 to 5) in the menu bar. The same view options can be selected via the option menu ***Views*** in the general information section (cf. Chapter 7.3.3.3, page 7-14) *Response:* The alarms are displayed according to the selected view.

7.3.4.3 Filters

Summary

For displaying the alarm lists you can select pre-defined filters. Only those alarms corresponding to the pre-defined criteria are displayed. The alarm set is displayed without modifying the current view.

The filters are:

- Alarms for the last 24 hours (all alarms which have been changed in the last 24 hours)
- Critical Raised Alarms
- Raised Alarms
- Alarms from a Host/s
- Critical Alarms not cleared
- Owned Acknowledge Alarms
- Clear Alarms
- All Acknowledge Alarms
- None Filter / All Alarms.

Effects

The alarms are rearranged according to the selected filter criteria.

Selecting Filter

Proceed as follows to select the desired filter option:

Step	Procedure

1. Select the desired filter option:

If you want to view ...	then select *Filters -> Pre-defined Filters...*	Result/Notes
all alarms which have been changed in the last 24 hours	***Alarms for the last 24 hours***	The alarms are displayed according to the selected filter.
all critical raised alarms	***Critical Raised Alarms***	The alarms are displayed according to the selected filter.
all raised alarms	***Raised Alarms***	The alarms are displayed according to the selected filter.
all alarms from a host	***Alarms from a Host/s***	NE selection window will open, see details below.
all not cleared critical alarms	***Critical Alarms not cleared***	The alarms are displayed according to the selected filter.
all owned acknowledge alarms	***Owned Acknowledge Alarms***	The alarms are displayed according to the selected filter.
all cleared alarms	***Clear Alarms***	The alarms are displayed according to the selected filter.
all acknowledge alarms	***All Acknowledge Alarms***	The alarms are displayed according to the selected filter.
all alarms	***None Filter / All Alarms***	The alarms are displayed according to the selected filter.

The same filter option can be selected

— via the option menu ***Filters*** in the general information section (cf. Chapter 7.3.3.3, page 7-14).

If you selected ***Alarms from a Host/s*** the NE selection window is displayed (cf. Figure 7-7, page 7-21) and you have to select one or more NEs and/or the AEM for which the alarms should be displayed. Press ***OK*** in the NE selection window to display the alarms from the selected objects in the Alarm Viewer or press ***Cancel*** to cancel the operation.

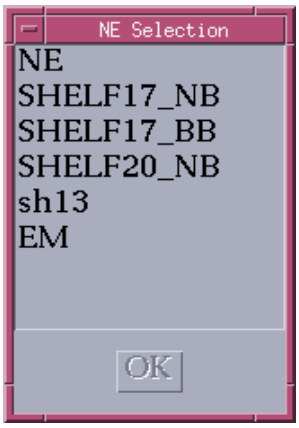

Figure 7-7 NE selection window

7.3.4.4 Administrator defined filters

Administrator privileges required

Only a user with administrator privileges can define own alarm filters in the Alarm Viewer application.

Filter syntax

This filter consist of a combination of logical expressions over the so called field-value tuples of the alarm database. Each logical expression consists of an alarm field, a relational operator (>, <, =, ...) and a value for the specified alarm field. Parenthesis can be used for grouping expressions.

Filter file

If the administrator specifies a logical expression in the filter file the AMS will query the alarm database to return the list of alarms that match this logical expression. For instance, an administrator can request all critical alarms of an NE, or all platform alarms, or all alarms which are service affecting and are raised at the same time.

7.3.4.4.1 Syntax rules

The following rules have to be obeyed for building a filter expression:

- The filter file must contain a single line only.
- A space has to be used between field names, possible values, operators and brackets.
- The expression **`NULL`** has to be used to represent an empty string.

Logical operators

The following symbols for logical operators must be used:

Table 7-8 Logical operators

Operation	Symbol
AND	**&&**
OR	**||**
NOT	**!**

Brackets "( )" must be used to group the expressions if more than one logical expression is needed.

Relational operators

The following symbols for relational operators must be used:

Table 7-9 Relational operators

Operation	Symbol
equal	**==**
less than	**<**
less than or equal	**<=**
greater than	**>**
greater than or equal	**>=**

Alarm field names and values

The alarm field names and their possible values from the following table have to be used.

Table 7-10 Alarm field names and possible values

Field name	Possible values
index	integer > 0
node	integer > 0 (for NE identifiers) or 0 (for AEM)
source_type	**Agent_BB** or **Agent_NB**
object	AID parameter in TL1 REPT-ALAM (e.g. **ap-1-1**)
cause	CONDTYPE parameter in TL1 REPT-ALAM (e.g. **AIS**)
severity	**indeterminate**, **critical**, **major**, **minor**, **warning** or **cleared**
serv_aff	**sa** or **nsa**
event_type	AIDTYPE parameter in TL1 REPT-ALAM (e.g. **COMM**)
ack_state	**ack** or **noack**
ack_user	any string which can be a valid user login
num_raises	integer >= 0
f_c_time	integer (number of seconds since Jan 1 1970 UTC)
l_c_time	integer (number of seconds since Jan 1 1970 UTC)
correlation	**correlated_source**, **no_correlated** or **correlated_result**

7.3.4.4.2 Example for filter file

The following expressions are examples for filters:

- Alarms which are in the state "ack" and do not have the severity "major"

  ```
  ( ack_state == ack ) && ! ( severity == major )
  ```

- Alarms which have the severity "minor" or are not service affecting

  ```
  ( severity == minor ) || ( serv_aff == nsa )
  ```

7.3.4.5 Help

Help is provided for every window. The help text describes the purpose of the window, how to use it and a description of each field of the window is given.

In the Menu Bar of each AEM application there are two help options:

- Index

  Displays the help index, allowing the user to navigate through the AEM help information.

- On window

  Displays the help information of the window where the user is currently working.

7.3.5 Alarm Viewer functions

Summary

The Alarm Viewer provides the user with different functions for managing alarm information:

- Manual reload of alarms
- Acknowledge alarms.

  The user can acknowledge one, several or all reported alarms. The AEM allows different users to acknowledge the same alarm. The name of the last user who has acknowledged the alarm is stored.
- Clear alarms

  The user can clear one, several or all platform alarms (communication alarms are platform alarms that cannot be cleared by the user). If not all selected alarms could be cleared, the user is informed about the alarms for which this action failed.
- Print alarm lists (cf. Chapter 7.3.4.1, page 7-18).

Before performing alarm acknowledgment and alarm clearance select the alarms you want to acknowledge or clear.

Starting actions

Select the desired alarm viewer action:

If you want to ...	then select ...	Result/Notes
manually retrieve alarms	***View -> Reload***	Reloads alarms in the table. Only alarms which match the filter criteria are included. The Alarm Viewer is blocked until the reload is finished. Same functionality as ***Reload*** in the tool bar. To customize the displayed alarm list perform the actions described in Chapter 7.3.4.3, page 7-19 and Chapter 7.3.4.2, page 7-18.
acknowledge alarms	***Actions -> Acknowledge***	All selected alarm items are acknowledged. Their status immediately changes to acknowledge. Same functionality as ***Acknowledge*** in the tool bar. For better readability the displayed alarms can be sorted (cf. Chapter 7.3.3.4.2, page 7-17).
clear alarms	***Actions -> Clear***	All selected alarm items are cleared. Their status immediately changes to cleared. Same functionality as ***Clear*** in the tool bar. For better readability the displayed alarms can be sorted (cf. Chapter 7.3.3.4.2, page 7-17).

7.4 Test management

Main functions

Test management provides all the general purpose test functionality. The main functions are:

- Providing the user with different test options (see below)
- Starting the test execution by means of the AEM
- Displaying the test results on the AEM user interface
- Setting and clearing of loopbacks.

Access to the test routines

The test routines are available via the "Groups and NEs Management" application. To start it, click on the Groups and NEs Management icon in the access bar. The menu bar, the Network Browser and the Background Map pop up (cf. Figure 7-8, page 7-26).

The tests can be executed from *AP* windows and *User Port* windows.

TL1 commands

Most of the test routines can also be executed via TL1 commands by using the TL1 command line interface (cf. Chapter 5.5.16).

Please refer to the network element documentation for a detailed description of TL1 commands (including an explanation of the input format, restrictions, error conditions etc.).

- The test execution via TL1 commands is described in this manual only for the stand-by card test scheduling and the single pulse feeding test because these tests cannot be executed via GUI.

Test Options

The following test options are available for telephony application:

- Port test (cf. Chapter 7.4.1.1, page 7-26)
- AP card test (cf. Chapter 7.4.1.2, page 7-28)
- Standby card test scheduling (cf. Chapter 7.4.1.3, page 7-30)
- Built-in self-test (cf. Chapter 7.4.1.4, page 7-31)
- Loopback test at the feeder side (cf. Chapter 7.4.1.5, page 7-31).

The following test options are available for data application:

- ADSL test list (cf. Chapter 7.4.2.1, page 7-33)
- ADSL corrupted CRC test (cf. Chapter 7.4.2.2, page 7-35)
- ADSL port built-in self-test (cf. Chapter 7.4.2.3, page 7-37).

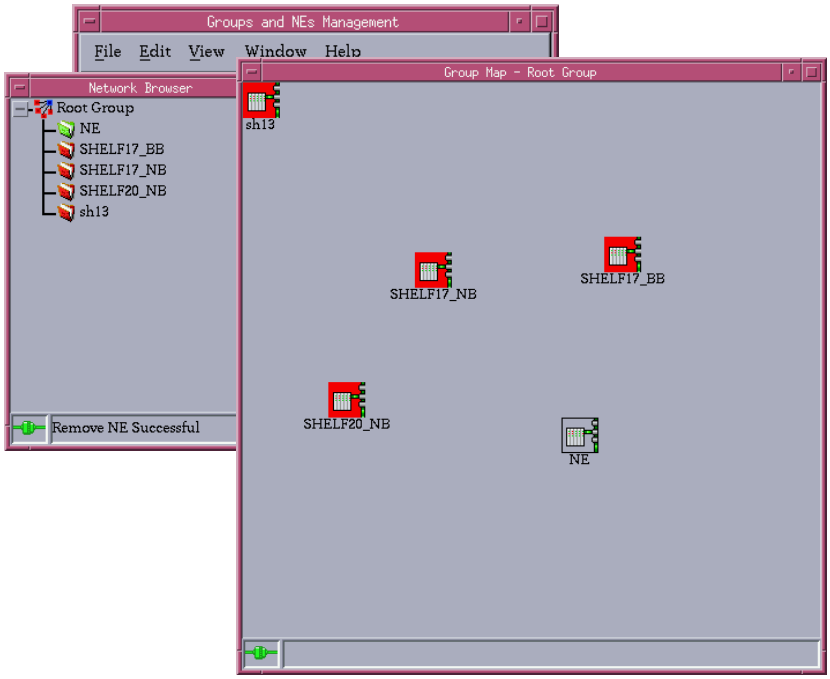

Figure 7-8 Groups and NEs Management window

7.4.1 Telephony tests

7.4.1.1 Port test

Purpose

By means of a port test you are able to run a series of self-diagnostic routines for a particular port on a specified AP (except AFM, ADSL APs) and CUs on MDS2 or MDS2B subshelves (NE R1.7.0).

NOTE:
The port test can be executed via GUI and via TL1 command.

7.4.1.1.1 Port test via GUI

Procedure

Proceed as follows to start a port test and view the test result:

Step	Procedure
1.	Open one of the following windows: ■ *Telephony Application Pack* window (cf. Chapter 5.5.5.7) ■ *Logical DS0* window (cf. Chapter 6.2.4.3).

2. Select the user port where you intend the test to run.

3. Use the option menu in the **Test Management** field to select Port Test and click on ***Apply***.

   After confirming the test execution a *Warning* window pops up showing the following message:

   Port Test may be service affecting. Do you want do continue?

   After confirming this warning the following *In Progress* message pops up:

   Port Test execution in progress on <NE Name>, <Slot ID>, <Provisioned Apparatus Code>, <Port id>.

4. Wait until the *Port Test Result* window appears and view the test result.

Test result

The *Port Test Result* window shows the test results of a series of self-diagnostic routines on a specific port circuit.

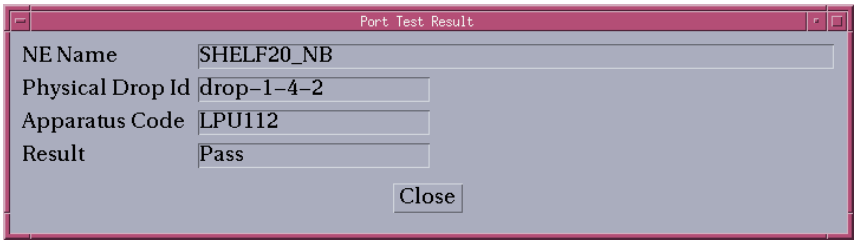

Figure 7-9 Port Test Result window

The text fields are display-only, they have the following meaning

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters) as specified at NE creation time.
Physical Drop Id	This field shows the port of the AP affected by the test. Possible values: drop-1-{1,16}-{1,x} / subdrop-{1,8}-{1,8}-{1,x}. (“x” depends on the card type).
Provisioned Apparatus Code	This code identifies the type of the provisioned card (for example LPA380, LPA300, etc.).
Result	This field displays the result of the test routines. Possible values: PASS or FAIL.

5. Click on ***Close*** to exit the *Port Test Result* window.

7.4.1.2 AP Card Test

Purpose

By means of an AP card test you are able to start a series of self-diagnostic routines for all port circuits on a specified AP plus its common circuitry.

Procedure

Proceed as follows to start an AP card test and view the test result:

Step	Procedure
1.	Open the *Telephony Application Pack* window (cf. Chapter 5.5.5.7)
2.	Use the option menu in the **Test Management** field to select AP Card Test and click on ***Apply***. After confirming the test execution a *Warning* window pops up showing the following message: **`AP Card Test may be service affecting. Do you want do continue?`** After confirming this warning the following *In Progress* message pops up: **`AP Card Test execution in progress on <NE Name>, <Slot ID>, <Card Type>.`**
3.	Wait until the *AP Card Test Result* window (cf. Figure 7-10, page 7-29) appears and view the test result.

Test result

The *AP Card Test Result* window shows the test results of a series of self-diagnostic routines for all port circuits on a specified AP plus its common circuitry.

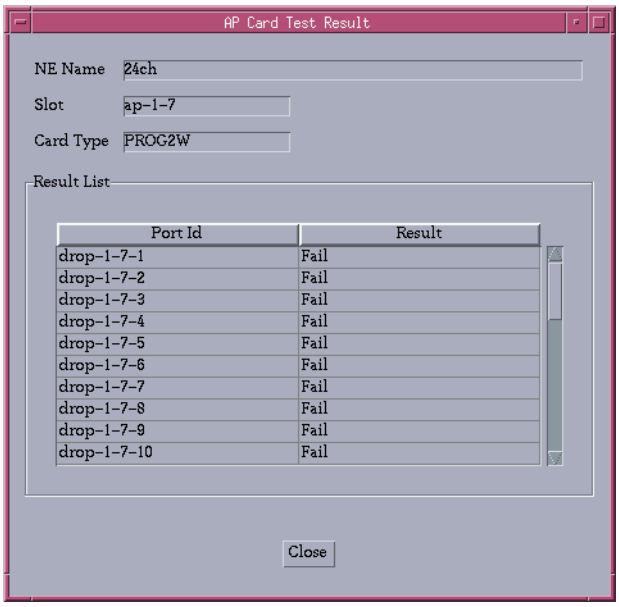

Figure 7-10 The AP Card Test Result window

The text fields are display-only and have the following meaning:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters) as specified at NE creation time.
Slot	This field shows the slot number of the AP being used. Possible values: AP-{1, 16}.
Card Type	Mnemonic used to identify the general type of function provided (AP card type). Possible values: PROG2W, PRCOIN, ISDN, AFM_DS3, ADSL4, TAP, MDSU.
Result List	**Port Id**: Identifies the port within the AP. Possible values: Port 1 ... Port 32. **Result**: Shows the result of the test. Possible values: PASS or FAIL.

4. Click **Close** to dismiss the *AP Card Test Result* window.

7.4.1.3 Stand-by card test scheduling

Side switch and off-line diagnostics

During the execution of a standby card test scheduling a COMDAC side switch and off-line diagnostics for the standby COMDAC or off-line diagnostics for the protection feeder IO-DS1 pack are performed.

Possible user settings

The AEM provides the opportunity to set up the periodicity and the time of the day (cf. Table 7-11) to perform a standby card test over:

- the standby COMDAC pack or
- the protection IO-DS1 pack.

NOTE:
Stand-by card test scheduling can be executed only via TL1 command.

7.4.1.3.1 Test scheduling via TL1 commands

Procedure

Proceed as follows to define the test scheduling via TL1 command:

Step	Procedure

1. Enter the following TL1 command by using the TL1 command line interface (cf. Chapter 5.5.16):

```
SCHED-EX:[tid]:AID:[ctag]::INVL,STM
```

Command code — Staging parameter blocks — Common block

The SCHED-EX (Schedule-Exercise) command instructs the system to set up an exercise schedule (exercise interval and start time of the day of exercise) to perform a COMDAC side switch or off-line diagnostics for the stand-by COMDAC.

Parameters in the common block

The parameters in the common block have the following meaning:

Table 7-11 Common block parameters for SCHED-EX

Parameter	Meaning	Format	Possible Values
INVL (Interval)	Periodicity: The number of days between two stand-by card tests.	x-DAY	x=1 ... 365
STM (Start time)	The time of day when stand-by card tests shall be performed.	hh-mm	hh=0 ... 23 (hour-of-day) mm=0 ... 59 (minute-of-hour).

Please refer to the network element documentation for a detailed description of TL1 commands (including an explanation of the input format, restrictions, error conditions etc.).

Result

Depending on the standby card test result the following behaviour can be observed:

- If the test is successful the side switch will be performed.
- If the test fails then no side switch will be performed. Additionally an alarm will be raised in this case.

7.4.1.4 Built-in self-test

Test Request

Each NE performs a built-in self-test of plug-in circuit packs periodically.

NOTE:
The built-in self-test is not requested from the AEM, it will be always started from the NE!

Procedure

If a failure occurs, the NE will raise an alarm (*REPT-ALM*) which contains the AID of the failed pack. The alarm is then visible in the Alarm Viewer of the AEM. For more information about possible alarms see Chapter 7.5.4, page 7-41 (describes AEM alarms) or refer to the network elements documentation (describes NE alarms).

7.4.1.5 Loopback test on the feeder side

It is possible to set or clear a loopback on particular feeders.

NOTE:
Executing a loopback test on an E1 feeder which is used for managing the NE (ROC over PLL) results in loss of the management connection. The connection can be re-established only via GSI using the serial line of the CIU connector (TL1 command: RLS-LPBK-E1::e1-1-{1, 4}-{1, 4}:; where e1-1-{1, 4}-{1, 4} has to be replaced by the corresponding feeder id).

To avoid the loss of the management connection please make sure that the feeder you intend to test is not the feeder of the management interface. Use the TL1 command "RTRV-ROC::[AID]:;" via GSI... or the cut-through connection from the AEM to find out if the feeder is associated to the leased line roc interface.

Procedure

Proceed as follows to set/clear a DS1 loopback:

Step	Procedure
1.	Open one of the following windows: ■ *IAT Server Port Information* window (cf. Chapter 5.5.5.21) ■ *Physical DS1* window (cf. Chapter 6.2.3.1).
2.	Select the physical feeder where you intend the test to run.
3.	Click on ***Set/Clear*** to change the loopback state. If the loopback setting is service affecting a *Warning* window pops up: for IAT Server: **`Setting Loopback for a feeder can be service affecting. Do you want to continue?`** for Physical DS1: **`Set or Clear Loopback may be service affecting. Do you want to continue?`**
4.	Enter ***y*** and press ***Return*** to confirm.

7.4.2 Data tests

7.4.2.1 ADSL test list

Procedure Proceed as follows to view the ADSL test list:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Lists -> ADSL Test*** via the cursor menu. The *ADSL Test List* window pops up.

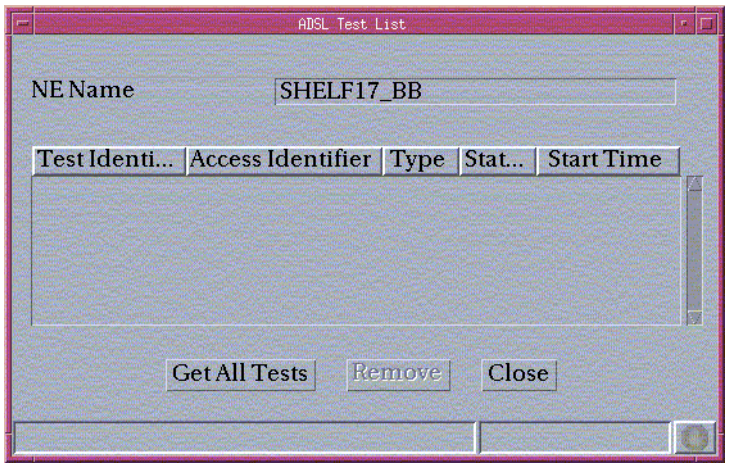

Figure 7-11 ADSL Test List window

This window lists all the tests stored in the data agent. In this window it is possible to delete stored tests.

The following table shows the parameters of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Table	This table shows all tests currently stored in the data agent. The table is sorted by entities. ■ **Test Identifier:** Indicates the test identifier inside the AFM (test number). ■ **Access Identifier**: Indicates the object for which the test has been executed. ■ **Type**: Indicates the test type which has been executed. Possible values: CRC test, BIST (Built-in shelf-test), LED test. ■ **Status (Result)**: Indicates the status of the test. Possible values: In_Progress, Passed, Could not be started, Passed with warning, Aborted. ■ **Start Time**: Indicates the date and time when the test was started.
Command buttons	The ***Get Test List*** button is used to display the list above. The ***Remove*** button can be used to remove a test from the list in the data agent. It is enabled only if a test has been selected.

2. Click on ***Get Test List*** to display the list of the ADSL tests stored in the data agent.

3. Select an entry in the test list and click on ***Remove*** to remove a test from the list or proceed with step 4.

4. Click on ***Close*** to exit the window.

NOTE:
If a test is already running (status In_Progress) a new start (ADSL corrupted CRC test - cf. Chapter 7.4.2.2, page 7-35; ADSL BIST test - Chapter 7.4.2.3, page 7-37) of the same kind of test will provoke a warning:

If the text exists in the table remove it and launch the test again.

Therefore it is recommended to remove a test from the list after the execution has been finished.

7.4.2.2 ADSL corrupted CRC test

Procedure Proceed as follows to set up an ADSL corrupted CRC test:

Step	Procedure
1.	Open one of the following windows: ■ *ADSL AP* window (cf. Chapter 5.5.5.29) ■ *ADSL Drop* window (cf. Chapter 5.5.5.31).
2.	Use the option menu near the ***Apply*** button to select **Corrupted CRC Test** and click on ***Apply***. The *ADSL Corrupted CRC Test* window pops up:

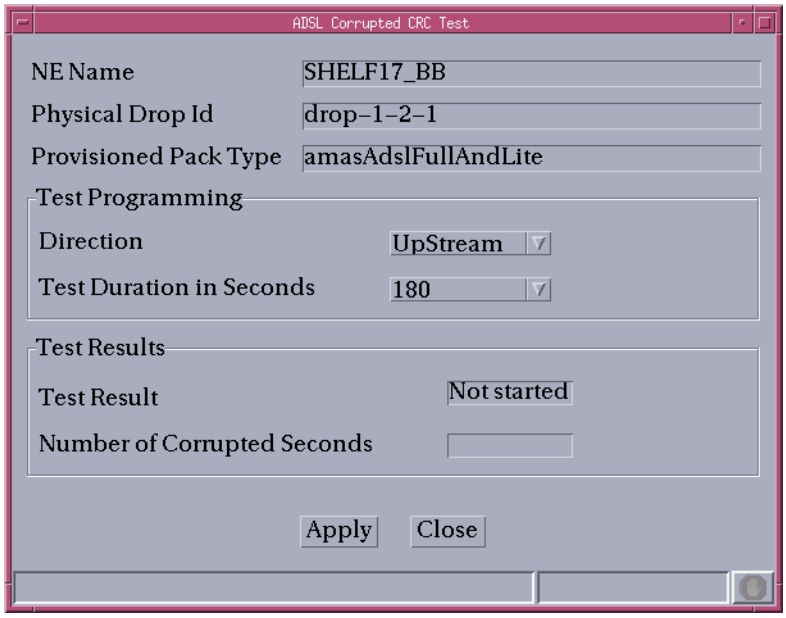

Figure 7-12 ADSL Corrupted CRC Test window

The following table shows the parameters of this window:

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Physical Drop Id	This field shows the port of the drop affected by the test. Possible values: drop-1-{1, 15}-{1, x}/ subdrop-{1, 8}-{1, 8}-{1, x}. x is the number of drops, supplied by the server.

Parameters/ Buttons	Description
Provisioned Pack Type	This code identifies the type of the provisioned pack. Possible value: ADSL.
Test Programming	**Directionality**: This option menu is used to define the direction of the test. Possible values: Upstream, Downstream. **Test Duration in Seconds**: This option menu is used to define the test duration in seconds. Possible values: {0, 511}.
Test Results	**Test Results**: This field shows the test result. Possible values: PASS, PASS-WARNING, FAIL, IN PROGRESS, ABORTED, NOT STARTED, INVALID TEST. **Additional Information**: This field shows additional information related to the CRC test. If the CRC has been passed the number of the detected CRC is displayed.
Apply	This button is used to execute the corrupted CRC test.

3. Use the option menus in the **Test Programming** field to define the test parameters and click on ***Apply***. The *In Progress* window pops up:

   `ADSL CRC Corrupted CRC Test executed on <NE Name>, <Drop Id> in progress.`

4. Wait until the test is finished and view the test result in the *ADSL Corrupted CRC Test* window (**Test Results**, see above).

5. Click on ***Close*** to exit the window.

7.4.2.3 ADSL port BIST test

Procedure Proceed as follows to set up an ADSL port BIST test:

Step	Procedure
1.	Open one of the following windows: ■ *ADSL AP* window (cf. Chapter 5.5.5.29) ■ *ADSL Drop* window (cf. Chapter 5.5.5.31).
2.	Use the option menu near the ***Apply*** button to select **ADSL BIST Test** and click on ***Apply***. If the drop is in the unlocked administrative state a *Warning* window pops up (otherwise the *In Progress* window pops up - see below): **`Performing a BIST Test on ADSL drop may be service affecting. Do you want to continue?`**
3.	Enter ***y*** and press ***Return***. The *In Progress* window pops up: **`BIST Test executed on <NE Name>, <Drop Id> in progress.`**
4.	Wait until the *ADSL BIST Test Result* window appears and view the test result.

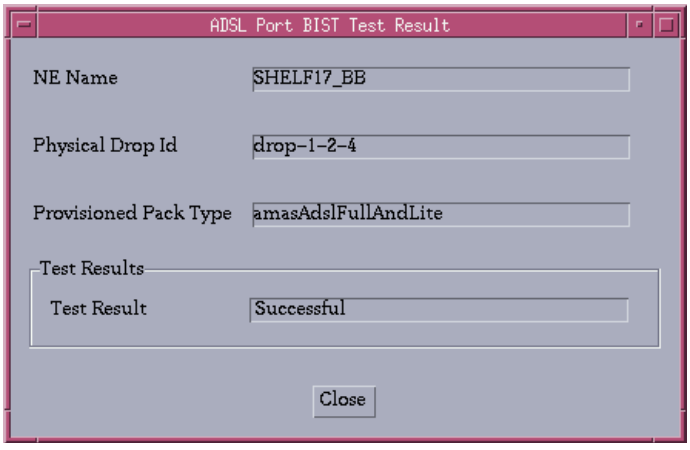

Figure 7-13 ADSL BIST Test Result window

The following table shows the parameters of this window

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Physical Drop Id	This field shows the port of the drop affected by the test. Possible values: drop-1-{1, 15}-{1, x}/ subdrop-{1, 8}-{1, 8}-{1, x}. x is the number of drops, supplied by the server.
Provisioned Pack Type	This code identifies the type of the provisioned pack. Possible value: ADSL.
Test Results	**Test Results**: This field shows the test result. Possible values: PASS, PASS-WARNING, FAIL, IN PROGRESS, ABORTED, NOT STARTED, INVALID TEST.

5. Click on ***Close*** to exit the window.

7.5 Alarms

7.5.1 Overview

An alarm is reported for any condition that needs user attention, since it may impact the normal operations of any system under user responsibility (e.g. AEM, NE).

7.5.2 Alarm types

Alarm classification

Detected alarms are classified as one of the following:

- Platform Alarm

  Alarm related to the AEM application or its hardware/software platform. Generated (raised) by any object of the AEM when it detects an abnormal condition to be reported to the user.

  Information provided:

  — Probable Cause

  — Severity

  — Service Affecting

  — AEM Object Identifier

  — Alarm Type Identifier

  — Occurrence Time.

- NE-AM Alarms

  Generated (raised) by the NE-AM. Refer to Chapter 7.2.5, page 7-7 to see how the information comes from the NE-AM to the AEM. The NE-AM alarms are classified in two groups:

  — Normal alarms

  Data provided:
  Access Identifier, Condition Type, Notification Code, Service Affecting, Access Identifier Type, Occurrence Date, Occurrence Time

  — Environment alarms

  Data provided:
  Access Identifier, Alarm Type, Notification Code, Occurrence Date, Occurrence Time.

For all alarm types several alarm data fields are conceptually the same (although they convey different values). For instance, both Condition Type and Alarm Type refer to the type of alarm being raised/cleared (Battery on discharge, Loss of frame, ...).

The following table maps all the equivalent fields to general names that uniquely identify a concept independently of the alarm type.

Table 7-12 General alarm fields

General Name	Platform Alarm	NE Alarm	NE Environment Alarm
Object_Id.	EM Object Identifier	Access Identifier	Access Identifier
Alarm_Type	Alarm Type Identifier	Condition Type	Alarm Type
Severity	Severity	Notification Code	Notification Code
Serv_Affec.	Service Affecting	Service Effect	-
Date_First_Time/ Date_Last_Time[a]	Occurrence Time and Date[a]	Occurrence Time[b]	Occurrence Time[b]
		Occurrence Date[c]	Occurrence Date[c]

a Time and date (YYYY-MM-DD HH-MM-SS)

b Only time (HH-MM-SS)

c Only date (MM-DD)

Alarm severities

For each alarm one of the following alarm severities is defined:

- Critical (CR)
- Major (MJ)
- Minor (MN)
- Warning (WR)
- Indeterminate (IN)
- Cleared (CL)

Alarm identification

The multiple key that uniquely identifies an alarm is:

- Host identifier

  Identifies where the alarm comes from. If it comes from an NE, then this identifier is the NE name. If the alarm is reported by the AEM the host identifier is "EM". For association alarms the host identifier is "NE_name".

- System object identifier

  Identifies the alarm-affected object within the host, which is identified by the host identifier. For association alarms the system object identifier is "ASSOC".

- General alarm identifier

  Unique identifier within each type of alarm.

In order to ease possible communication between different users, an index number is provided as a temporal alarm identification. It is temporal because the index number will be used as a circular sequence (the maximum sequence number is 100 000). It is provided only for user convenience. It will not be used to identify an alarm within the AMS. For this purpose the multiple key defined above has to be used.

7.5.3 Network element alarms

Alarm descriptions Please refer to the network element documentation for detailed alarm descriptions of network element alarms.

7.5.4 General element manager platform alarms

This chapter provides alarm descriptions of general AEM platform alarms including proposals for corrective maintenance actions.

Alphabetical order In the following the AEM platform alarms are listed alphabetically.

7.5.4.1 LOG_DEL_FULL

Meaning All old logs have been deleted. Because more available space was necessary the log type of the current day has been deleted, too. The Object_Id shows which log type has been deleted.

Abbreviation: LOG_DEL_FULL

Severity: Major

Service affecting: No

Effects There are no old logs available, and not all logs of the current day are available to be viewed or stored.

Possible cause(s) There may be a problem or abnormal situation in the AEM, or the selection of the configurable size limits of the log system was too small.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check the AEM for problems or abnormal situations. Have any problems or abnormal situations occurred? **Yes:** Try to resolve these problems or abnormal situations. If this is not possible, continue with step 2. **No:** Continue with step 2.
2.	Check the size limits of the log system. Are the size limits set correctly (cf. Chapter 3.7.2)? **Yes:** Call Lucent Technologies Technical Support. **No:** Set the size limits correctly, i.e. increase the size limits.

7.5.4.2 LOG_DEL_PART

Meaning A log type not yet archived has been deleted due to lack of available space.

Abbreviation: LOG_DEL_PART

Severity: Minor

Service affecting: No

Effects The respective log type can neither be viewed nor archived.

Possible cause(s) There may be a problem or an abnormal situation in the AEM, or the configurable size limits of the log system have not been chosen correctly.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Archive the remaining logs to prevent them from being deleted.
2.	Check the AEM for problems or abnormal situations. Have any problems or abnormal situations occurred? **Yes:** Try to resolve these problems or abnormal situations. If this is not possible, continue with step 3. **No:** Continue with step 3.
3.	Check the size limits of the log system. Are the size limits set correctly (cf. Chapter 3.7.2)? **Yes:** Call Lucent Technologies Technical Support. **No:** Set the size limits correctly, i.e. increase the size limits.

7.5.4.3 PRINT_ALARM

Meaning There are one or more problems blocking the printing jobs.

Abbreviation: PRINT_ALARM

Severity: Major

Service affecting: No

Effects It is not possible to print reports.

Possible cause(s) There may be a problem in the printer, the spoolers, the network or the AEM.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check if a default printer is defined.?
	Yes: Continue with step 2.
	No: Define a default printer.
2.	Check if the printer is working properly.
	Yes: Call Lucent Technologies Technical Support for checking the network or the AEM.
	No: Have the printer repaired.

7.5.5 Element manager alarms concerning network element

This chapter provides alarm descriptions of the AEM platform alarms concerning the data agent including proposals for corrective maintenance actions.

Alphabetical order In the following the AEM platform alarms are listed alphabetically.

7.5.5.1 ALARM_AO_NOT_PROCESS

Meaning The AEM is discarding the Alarm AOs coming from the telephony agent.

Abbreviation: ALARM_AO_NOT_PROCESS

Severity: Major

Service affecting: No

Effects The alarm data of the AEM does not match the alarm data of the telephony agent. The alarm synchronization state is moved to ASYNC.

Possible cause(s) Alarm buffer overflow detection.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Perform a manual alarm synchronization process to upload the alarm data and to start processing AOs.
2.	Is the alarm now cleared?
	Yes: O.K.
	No: Call Lucent Technologies Technical Support.

7.5.5.2 ALARM_EVENT_NOT_PROCESS

Meaning The AEM is discarding the alarm traps coming from the data agent.

Abbreviation: ALARM_EVENT_NOT_PROCESS

Severity: Major

Service affecting: No

Effects The alarm data of the AEM does not match the alarm data of the data agent.

Possible cause(s) Alarm buffer overflow.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Perform a manual alarm synchronization process to upload the alarm data and to start processing traps.
2.	Is the alarm now cleared? **Yes:** O.K. **No:** Call Lucent Technologies Technical Support.

7.5.5.3 COMM_DENIED

Meaning An unsuccessful reply has been detected when the AEM sends the request to establish a connection with the telephony agent.

Abbreviation: COMM_DENIED

Severity: Critical

Service affecting: No

The alarm will be cleared when the connection between the AEM and the telephony agent has been successfully established.

Effects It is not possible to manage the telephony agent.

Possible cause(s) The AEM is trying to establish the connection with an agent while its COMDAC initialization process is in progress.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check if the COMDAC is in the initialization process and wait until this process is finished.

7.5.5.4 COMMUNICATION_LOST

Meaning Communication with data agent lost.

Abbreviation: COMMUNICATION_LOST

Severity: Critical

Service affecting: No

Effects It is not possible to manage the data agent.

Possible cause(s) Heart beat messages are not responded to by the data agent.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check for correct data agent state. **Yes:** Continue with step 2. **No:** Call Lucent Technologies Technical Support.
2.	Check for DCN being in service. **Yes:** Call Lucent Technologies Technical Support. **No:** Put the DCN into service.
3.	Is the alarm now cleared? **Yes:** O.K. **No:** Call Lucent Technologies Technical Support.

7.5.5.5 COMM_PROBLEM

Meaning The data agent does not respond the AEM while trying to establish a communication.

Abbreviation: COMM_PROBLEM

Severity: Critical

Service affecting: No

Effects It is not possible to manage the data agent.

Possible cause(s) Invalid IP address.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check for DCN being in service.
	Yes: Continue with step 2.
	No: Put the DCN into service.
2.	Check the IP address of the data agent.
	Yes: Call Lucent Technologies Technical Support.
	No: Correct the IP address.
3.	Is the alarm now cleared?
	Yes: O.K.
	No: Call Lucent Technologies Technical Support.

7.5.5.6 COMM_RES_NOT_AVAILABLE

Meaning The communication between AEM and NE cannot be established.

Abbreviation: COMM_RES_NOT_AVAILABLE

Severity: Critical

Service affecting: No

Effects It is not possible to manage the NE.

Possible cause(s) The limit of connections that the AEM can manage has been reached.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Start new instances of the progress(es) in charge of communication management

7.5.5.7 CONFIG_AO_NOT_PROCESS

Meaning The AEM is discarding the configuration AOs coming from the telephony agent.

Abbreviation: CONFIG_AO_NOT_PROCESS

Severity: Major

Service affecting: No

Effects The configuration data of the AEM does not match the configuration data of the telephony agent. The configuration data synchronization state is moved to ASYNC.

Possible cause(s) Configuration buffer overflow.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Perform a manual configuration synchronization process to upload the configuration data and to start processing AOs.
2.	Is the alarm now cleared? **Yes:** O.K. **No:** Call Lucent Technologies Technical Support.

7.5.5.8 CONFIG_EVENT_NOT_PROCESS

Meaning The AEM is discarding the configuration traps coming from the data agent.

Abbreviation: CONFIG_EVENT_NOT_PROCESS

Severity: Major

Service affecting: No

Effects The configuration data of the AEM does not match the configuration data of the data agent.

Possible cause(s) Configuration buffer overflow.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Perform a manual configuration synchronization process to upload the configuration data and to start processing traps.
2.	Is the alarm now cleared? **Yes:** O.K. **No:** Call Lucent Technologies Technical Support.

7.5.5.9 CX_CONN_NOT_VISIBLE

Meaning Some cross-connections in the AFM are not visible.

Abbreviation: CX_CONN_NOT_VISIBLE

Severity: Minor

Service affecting: No

Effects There are cross-connections in the data agent which cannot be managed by the AEM.

Possible cause(s) There are cross-connections in the AFM associated to non-provisioned ports. This kind of cross-connections are ignored by the AEM upload procedure and therefore they are not visible in the AEM.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Use the CIT or the MIB browser to provision the needed APs or to remove the affected cross-connections.
2.	Request a resynchronization after AP provisioning.

7.5.5.10 INVALID_MIB_IDENTIFIER

Meaning The data agent to communicate with is not a valid data agent.

Abbreviation: INVALID_MIB_IDENTIFIER

Severity: Critical

Service affecting: No

Effects It is not possible to start the communication with the data agent.

Possible cause(s) The sysObjectId MIB variable retrieved from the data agent is not valid.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check the IP address of the data agent.

Yes: Continue with step 2.

No: Correct the IP address.

2. Check for correct sysObjectId MIB variable.

   Yes: Call Lucent Technologies Technical Support.

   No: Correct the IsysObjectId MIB variable.

3. Is the alarm now cleared?

   Yes: O.K.

   No: Call Lucent Technologies Technical Support.

7.5.5.11 NB_ASSOC_FAILED

Meaning The communication association with the telephony agent has failed.

Abbreviation: NE_ASSOC_FAILED

Severity: Critical

Service affecting: No

This alarm covers the following alarms:

- TCP/IP_CON_REFUSED (cf. Chapter 7.5.5.14, page 7-51)
- TL1_COMM_DENIED (cf. Chapter 7.5.5.15, page 7-52)
- NB_ASSOC_LOST (cf. Chapter 7.5.5.12, page 7-49).

NOTE:
This alarm is only used in NBI applications.

7.5.5.12 NB_ASSOC_LOST

Meaning The AEM lost the management association with the telephony agent.

Abbreviation: NEASSOC_LOST

Severity: Critical

Service affecting: No

The alarm will be cleared when the TCP/IP connection and TL1 communication session are available, and the software version currently stored in the NE is supported by the AEM, i.e. when the association process between the AEM and the NE is completed (NE state is **CONNECTED**).

Effects It is not possible to manage the telephony agent. The TL1 communication session and the TCP/IP connection are lost.

Possible cause(s) A loss of the TCP/IP connection has been detected, or the TCP/IP connection has been closed as a consequence of a loss of the TL1 communication session.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure

1. Check the telephony agent state after a waiting period of 1 minute.

   Comment: When the NE state is CONNECTED and the TCP/IP connection is lost or closed, the NE state is moved to TRYING and the loop process to re-establish the connection with the NE is started by the AEM.

   Is the state CONNECTED?

   Yes: O.K.

   No: Continue with step 2.

2. Check for Data Communication Network (DCN) being in service.

   Is the DCN in service?

   Yes: Call Lucent Technologies Technical Support.

   No: Put the DCN into service.

7.5.5.13 SW_VR_ILLEGAL

Meaning The software version currently stored in the agent is not supported by the AEM.

Abbreviation: ILLEGAL_SW_VERSION

Severity: Critical

Service affecting: No

Effects It is not possible to manage the agent. Agent software version is not supported.

Possible cause(s) The software version currently stored in the agent is not supported by the AEM, or the AEM is trying to establish the communication with a agent while its COMDAC/AFM initialization process is in progress.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure

1. Check that the correct version of software is installed on the agent's system controller card.

   Yes: Continue with step 2.

   No: Install the correct SW version.

2. Check if the COMDAC/AFM is in the initialization process, and wait until this process has finished.

3. Is the alarm now cleared?

   Yes: O.K.

   No: Call Lucent Technologies Technical Support.

7.5.5.14 TCP_IP_CON_REFUSED

Meaning The TCP/IP connection establishment could not be completed successfully for port numbers 11002, 11004, 11006 and 11008.

Abbreviation: TCP_IP_CON_REFUSED

Severity: Critical

Service affecting: No

Effects It is not possible to manage the telephony agent.

Possible cause(s) Some TCP/IP protocol errors stopped the connection establishment process between the AEM and the telephony agent.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure

1. Check the TCP/IP communication addresses.

   Are the TCP/IP communication addresses correct?

   Yes: Continue with step 2.

   No: Correct the addresses. Continue with step 4.

2. Check the gateway telephony agent identification.

   Is the gateway telephony agent identification correct?

   Yes: Continue with step 3.

   No: Correct the identification. Continue with step 4.

3. Check the DCN.

   Is the DCN in service?

   Yes: Continue with step 4.

   No: Bring the DCN into service.

4. Is the alarm now cleared?

   Yes: O.K.

   No: Call Lucent Technologies Technical Support.

7.5.5.15 TL1_COMM_DENIED

Meaning

User login for a TL1 communication session was denied by the telephony agent for all TCP/IP connections opened.

Abbreviation: TL1_COMM_DENIED

Severity: Critical

Service affecting: No

The alarm will be cleared when a TL1 communication session between the AEM and the telephony agent has been successfully opened.

Effects

It is not possible to manage the telephony agent because there is no TL1 communication session available.

Possible cause(s)

A user login error is stopping the TL1 communication session establishment process between the AEM and the telephony agent.

Corrective actions

Proceed as follows to clear the alarm:

Step	Procedure
1.	Check for correct user identification (user login), password and telephony agent target identifier (TID).
2.	Check with the GSI that the four VCs in the telephony agent are not busy (RTRV-STATUS TL1 command).

7.5.5.16 UNABLE_TO_SYNC_ALARM

Meaning

The Alarm Synchronization process has failed “n” times.

Abbreviation: UNABLE_TO_SYNC_ALARM

Severity: Major

Service affecting: No

Effects

An updated view of the alarm data of the data agent cannot be uploaded.

Possible cause(s)

The communication with the data agent may be interrupted.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check for correct data agent state.
	Yes: Continue with step 2.
	No: Call Lucent Technologies Technical Support.
2.	Check for DCN being in service.
	Yes: Call Lucent Technologies Technical Support.
	No: Put the DCN into service.
3.	Is the alarm now cleared?
	Yes: O.K.
	No: Call Lucent Technologies Technical Support.

7.5.5.17 UNABLE_TO_SYNC_CONFIG

Meaning The Configuration Synchronization process has failed “n” times.

Abbreviation: UNABLE_TO_SYNC_CONFIG

Severity: Major

Service affecting: No

Effects An updated view of the configuration data of the data agent cannot be uploaded.

Possible cause(s) The communication with the data agent may be interrupted.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check for correct data agent state.
	Yes: Continue with step 2.
	No: Call Lucent Technologies Technical Support.
2.	Check for DCN being in service.
	Yes: Call Lucent Technologies Technical Support.
	No: Put the DCN into service.

3. Is the alarm now cleared?

Yes: O.K.

No: Call Lucent Technologies Technical Support.

7.5.5.18 UPLOAD_PROBLEM

Meaning Some configuration data have been lost during synchronization.

Abbreviation: UPLOAD_PROBLEM

Severity: Critical

Service affecting: No

Effects Some configuration data are not available in the AEM database.

Possible cause(s) AFM problem.

Corrective actions Proceed as follows to clear the alarm:

Step	Procedure
1.	Check for correct AFM configuration.

7.5.6 Correlated alarms

Introduction The following table contains a list of AEM alarms triggered by alarms from the telephony or/and data agent.

Example The **POLL** alarm from the telephony agent as well as the **amasAFMAPNoResponseAlarmCS** alarm from the data agent effects the **DUP_NO_RESP_POLL** alarm in the AEM.

Table 7-13 Correlated alarms

Probable Cause	Summary	Severity	Service Affecting	Object_Id	Description
POLL	not responding to poll	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
amasAFMAPNoResponseAlarmCS	AP not responding to AFM poll	Major, Minor	yes	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
DUP_NO_RESP_POLL	not responding to poll	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	AP: pack not responding to poll
INT	internal hardware failure	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
amasAFMPackFailAlarmCS	AP self test pack failure reported	Major, Minor	yes	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
amasAFMAPFailAlarmCS	AFM self test pack failure reported	Major, Minor	yes	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
DUP_PACK_FAIL	internal hardware failure	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	AP self test pack failure reported
PRCDERR	procedural error	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	illegal/unknown pack in AP slot
amasUnknownPackType	unknown pack detected	Minor	no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
DUP_PACK_MISMATCH	incompatible pack type	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	illegal pack in AP slot
IMPROPRMVL	improper removal	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	missing pack in AP slot
amasAFMPackRemovedAlarmCS	AP has been removed	Minor	yes	ap-1-{1, 16} subap-{1, 8}-{1, 8}	
DUP_PACK_RMVL	pack removal	Major, Minor	yes, no	ap-1-{1, 16} subap-{1, 8}-{1, 8}	missing pack in AP slot

Table 7-13 Correlated alarms

Probable Cause	Summary	Severity	Service Affecting	Object_Id	Description
PRCDERR	mismatch of logical sub-shelf number	Critical	yes	subsh-{1, 8}	
amasSubShelfAssocia-tionMismatchAlarm	association mismatch re-ported	Major	yes	subsh-{1, 8}	
DUP_SUBSHELF_MISMATCH	incompatible subshelf type	Critical	yes	subsh-{1, 8}	illegal subshelf type in parent slot

Performance monitoring

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Performance monitoring

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8.1 Overview

This chapter provides you with informations about

- ADSL performance monitoring
- AFM feeder performance monitoring
- ATM traffic monitoring.

It describes the collection, display, logging and threshold reporting for performance monitoring (PM) and traffic measurements counts.

8.2 ADSL performance monitoring data

The AEM is able to retrieve the ADSL performance monitoring counts from the NE via FTP. The interval data are retrieved and stored every 15 minutes the day data are retrieved and stored every 24 hours from each enabled NE.

The data are stored per day in a separate log file (AdslLineStatisticsLog_YYYYMMDD; where YYYY = year, MM = month and DD = day) located in $ANYMEDIAPATH/log. The file contains also hints about start logging, stop logging and error messages.

8.2.1 ADSL Performance Monitoring Data window

This window is used to display all ADSL performance monitoring parameter. This window also allows to select data collection or clear counters of either the selected ADSL drop or all the ADSL drops in the NE. Because there are performance monitoring data by each ADSL drop there are three option menus to select the ADSL drop.

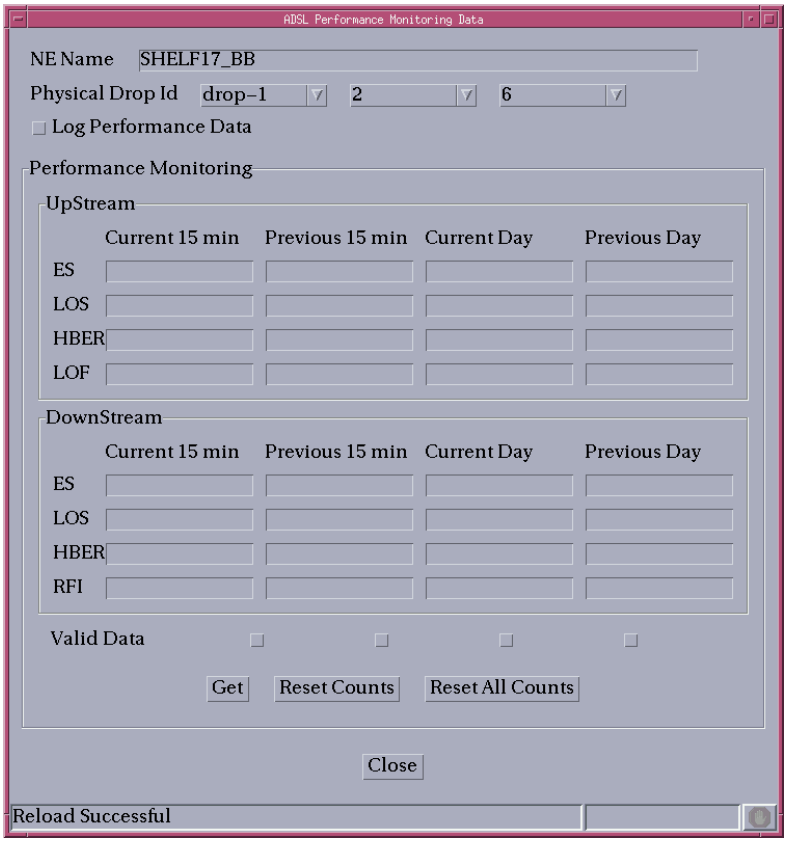

Figure 8-1 ADSL Performance Monitoring Data window

The following table shows the view/edit options of this window.

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Physical Drop Id	These fields display the ADSL drop id by means of three option menus: ■ The first one contains the drop shelf Format: drop-1 or subdrop-{1, 8}. None is also allowed. ■ The second one contains the slot number inside the NE, but only for slots in which an ADSL pack is provisioned. Format: {1, 16} for main shelf or {1, 8} for subshelf. None is also allowed. ■ The third one contains the drop number inside the slot indicated in the previous list {1, x}. Format: drop-shelf-slot-port. Possible values: drop-1-{1, 16}-{1, x}. None is also allowed. (x is the number of drops, supplied by the server).
Log Performance Data	This check box can be used to define whether the AEM is collecting and logging the performance monitoring data for all the ADSL drops in the NE or not.

Parameters/ Buttons	Description
Performance Monitoring	**Upstream**: Four text fields show the values for four different time periods (Current 15 minutes, Previous 15 minutes, Current day, Previous day). ■ **PSES (P-bit Severely Errored Second)**: Possible values: 1... 900 for 15 minutes, 1... 86400 for one day. ■ **LOS (Loss of Signal)**: Possible values: 1 ... 90 for 15 minutes, 1 ... 8640 for one day. ■ **HBER (High Bit Error Rate)**: Possible values: 1... 90 for 15 minutes, 1... 8640 for one day. ■ **LOF (Loss of Frame)**: Possible values: 1... 90 for 15 minutes, 1... 8640 for one day. **Valid Data**: Four check boxes show whether the data for the time period are valid or not. **Downstream**: Four text fields show the values for four different time periods (Current 15 minutes, Previous 15 minutes, Current day, Previous day). ■ **PSES**: Possible values: 1... 900 for 15 minutes, 1... 86400 for one day. ■ **LOS (Loss of Signal)**: Possible values: 1... 90 for 15 minutes, 1... 8640 for one day. ■ **HBER (High Bit Error Rate)**: Possible values: 1... 90 for 15 minutes, 1... 8640 for one day. ■ **RFI (Remote Failure Indication)**: Possible values: 1... 90 for 15 minutes, 1... 8640 for one day. **Valid Data**: Four check boxes show whether the data for the time period are valid or not. The ***Get*** button is used to retrieve the PM data of the selected drop. The ***Reset Counts*** button can be used to restart the performance monitoring of the selected drop. The ***Reset All Drops Counts*** button can be used to restart the performance monitoring of all ADSL drops within the NE.

8.2.2 Modify the ADSL performance monitoring

Procedure

Complete the following procedure to modify the ADSL performance monitoring:

Step	Procedure

1. Select ***NE*** in the Network Element Browser and ***Performance -> ADSL*** via the cursor menu
or click on the ***ADSL PM Data*** button in the *ADSL Drop* window.
The *ADSL Performance Monitoring Data* window pops up.

2. Use the option menus **Physical Drop Id** to select the desired ADSL drop.

3. Use the check box **Log Performance Data** to define whether the monitoring data should be logged or not.

If you want to ...	then ...
retrieve the performance monitoring data	click on ***Get***.
restart the monitoring data counter for the selected drop	click on ***Reset Counts***.
restart the monitoring data counters for all drops within the NE	click on ***Reset ALL Drops Counts***.
exit the window	click on ***Close***.

8.3 AFM feeder performance monitoring

The AFM feeder performance monitoring consists of retrieving, displaying, provisioning and storing DS3/E3 performance measurements detected by the AFM.

The AEM is able to retrieve the DS3/E3 performance monitoring counts from the NE. The interval data are retrieved and stored every 15 minutes the day data are retrieved and stored every 24 hours from each enabled NE. The 24 hour data for feeders is updated every 15 minutes in the AFM.

The data are stored per day in a separate log file (AdslDsxE3StatisticsLog_YYYYMMDD; where YYYY = year, MM = month and DD = day) located in $ANYMEDIAPATH/log. The file contains also hints about start logging, stop logging and error messages.

8.3.1 AFM Performance Monitoring window

This window displays the AFM performance monitoring parameter of the selected feeder. This window also allows to select data collection (for all the feeders in the NE) or clear counters of one feeder.

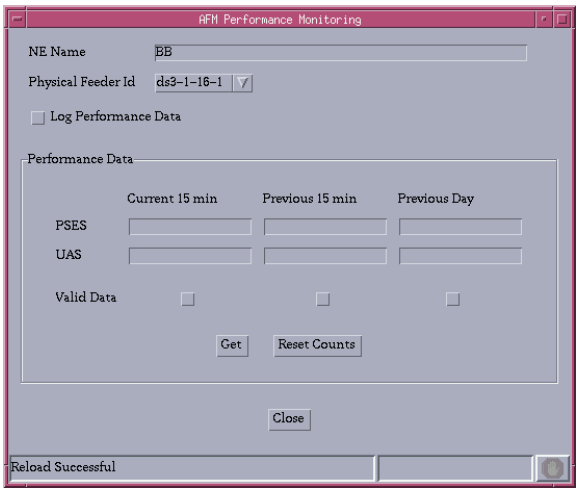

Figure 8-2 AFM Performance Monitoring window

The following table shows the view/edit options of this window.

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).

Parameters/ Buttons	Description
Feeder Id	This option menu can be used to select an appropriate feeder. Possible values: ds3-1-16-{1, 2}.
Log Performance Data	This check box can be used to define whether the AEM is collecting and logging the performance monitoring data for all the feeders in the NE or not.
Performance Data	Three text fields show the values for three different time periods (Current 15 minutes, Previous 15 minutes, Previous day). ■ **PSES (P-bit Severely Errored Second)**: Possible values: 1 ... 900 for 15 minutes, 1... 86400 for one day. ■ **UAS (Unavailable Second)**: Possible values: 1... 900 for 15 minutes, 1... 86400 for one day. **Valid Data**: Three check boxes show whether the data for the time period are valid or not.
Get	This button is used to retrieve the performance monitoring data of the selected feeder.
Reset Counts	This button can be used to restart the performance monitoring data of the selected feeder.

8.3.2 Modify the AFM performance monitoring

Procedure Complete the following procedure to modify the AFM performance monitoring:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Performance -> Feeder*** via the cursor menu or click on the ***PM Data*** button in the *AFM Feeder* window. The *AFM Performance Monitoring Data* window pops up.
2.	Use the option menu **Feeder Id** to select the desired feeder.
3.	Use the check box **Log Performance Data** to define whether the monitoring data should be logged or not.

If you want to ...	then ...
retrieve the performance monitoring data	click on ***Get***.
restart the monitoring data counter for the selected feeder	click on ***Reset Counts***.

If you want to ...	then ...
exit the window	click on ***Close***.

8.4 ATM traffic monitoring

Limited ATM traffic measurements for cells received on the ATM feeder are collected by the AFM.

The AEM is able to display/clear the ATM cell traffic data. Interval data are retrieved and stored every 15 minutes from each enabled NE.

The data are stored per day in a separate log file (AdslATMStatisticsLog_YYYYMMDD; where YYYY = year, MM = month and DD = day) located in $ANYMEDIAPATH/log. The file containsalso hints about start logging, stop logging and error messages.

8.4.1 ATM Traffic Monitoring window

This window is used to display all ATM cell traffic data. It also allows to select data collection or to clear the counter.

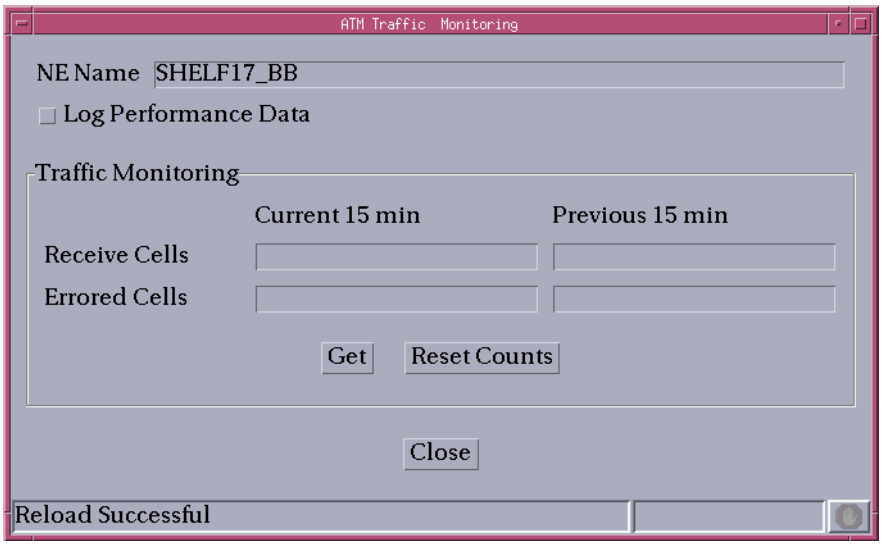

Figure 8-3 ATM Traffic Monitoring window

The following table shows the view/edit options of this window.

Parameters/ Buttons	Description
NE Name	NE name of the selected NE (max. 30 characters).
Log Performance Data	This check box can be used to specify whether the AEM is collecting and logging the traffic monitoring data in the NE or not.

Parameters/ Buttons	Description
Traffic Monitoring	Two text fields show the values for two different time periods (Current 15 minutes, Previous 15 minutes). ■ **Receive Cells**: Possible values: 0...800 000 000. ■ **Errored Cells**: Possible values: 0...800 000 000.
Get	This button is used to retrieve the ATM traffic data.
Reset Counts	This button can be used to restart the traffic data of the selected NE.

8.4.2 Modify the ATM traffic monitoring

Procedure

Complete the following procedure to modify the ATM traffic monitoring:

Step	Procedure
1.	Select ***NE*** in the Network Element Browser and ***Performance -> ATM Traffic*** via the cursor menu. The *ATM Traffic Monitoring* window pops up.
2.	Use the check box **Log Performance Data** to define whether the monitoring data should be logged or not.

If you want to ...	then ...
retrieve the traffic monitoring data	click on ***Get***.
restart the traffic monitoring data counter	click on ***Reset Counts***.
exit the window	click on ***Close***.

Data communications network (DCN) configuration

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Data communications network (DCN) configuration

A

A.1 Overview

This appendix provides you with information about

- Data communication network (DCN) introduction,
- general definitions of terms,
- network element management communications,
- AnyMedia Element Manager management communications,
- Sample DCN configurations.

A.2 DCN introduction

The *AnyMedia*® Access System is designed to provide a full range of telephony access services (like POTS, ISDN and leased lines) and data services.

AEM features

The *AnyMedia* Element Manager - 24 Channel (AEM) R1.7 will provide the standard management configuration, equipment configuration, fault and testing, performance and security functions capabilities to do service management, monitoring, generate reports and printouts, do backup and restore functions for example to improve the customer's day to day business.

Communication of AEM and NE

The AEM communicates with the telephony agents by using TL1 commands and file transfer protocol (FTP) over TCP/IP. The AEM communicates with the data agents by using simple network management protocol (SNMP) over UDP/IP and FTP over TCP/IP. The AEM is also prepared to communicate with other legacy OSs by means of TL1 northbound interfaces and via CORBA interface. TL1 is used for request/response and autonomous reports commands and FTP is used for software and database upload/download operations.

DCN

The DCN is the communications infrastructure (routers, WAN links, etc.) needed for communication of the AEM with the NEs it manages. This manual refers to

AEM release 1.7 and the supported NE releases. For these releases many DCN configurations and protocol profiles can be used according to the network operators needs and scenarios. Two sample DCN scenarios are given at the end of this chapter.

A.3 Terms used in this chapter

Data communications network
The DCN consists of the communication media and the interconnected devices which are used to exchange management information between the AEM, the NEs and other management systems.

Semi permanent leased line
A semi permanent leased line (SPLL) is a service in which resources are used permanently for the transmission of data between two points. The switch is the responsible for the set-up of this service.

Remote operations channel
The remote operations channel (ROC) is a bearer channel that conveys management information for a remote system (*AnyMedia* NE). The ROC is expected to be used when the system is installed at locations where no ethernet local area network (LAN) and no separate network (e.g. X.25) exists.

Router
A router is a network layer device that forwards packets from one network to another based on network layer information (OSI layer 3). Data packets are only transferred through the router, if the participant is on another port of the router. The router can keep data traffic certain parts of a LAN. A router is more powerful than a bridge, it reduces the traffic on a LAN more than a bridge, because the IP address is evaluated for traffic control.

Bridge
A bridge is a network layer device that passes packets between two or more network segments that use the same data link communications protocol (OSI layer 2). The network segments appear as one segment to protocol levels higher than the data link layer. The bridge recognizes with the help of the MAC address which LAN component is on which port of the bridge. Data packets are only transferred over the bridge if the participant is on another port of the bridge. With a bridge data traffic can be kept from certain parts of a LAN.

Inband management channel
The inband management channel is a bearer ATM PVC that conveys management information for a remote data agent (AFM). It can also be used for carrying NB management information in mixed configurations.

A.4 NE communication capabilities

In this section the management communication capabilities of an AEM R1.7 are described. The *AnyMedia* Access System provides the following management interfaces for operation, administration, maintenance, and provisioning (OAM&P):

- Craft interface terminal (CIT).

  The CIT port is an EIA/TIA-232-E interface configured as a data communication equipment (DCE) and located on the CTU faceplate for local and remote logins. The CIT interface supports exchange of TL1 messages and file transfers. There are two modes available for communications via the CIT interface:

  — dumb terminal which allows local access with the exchange of TL1 messages

  — GSI without PPP capability which allows local exchange of TL1 messagesand file transfers over a Lucent proprietary communicating protocol.

  The protocol profile in the NE for this scenario is shown in Figure A-1.

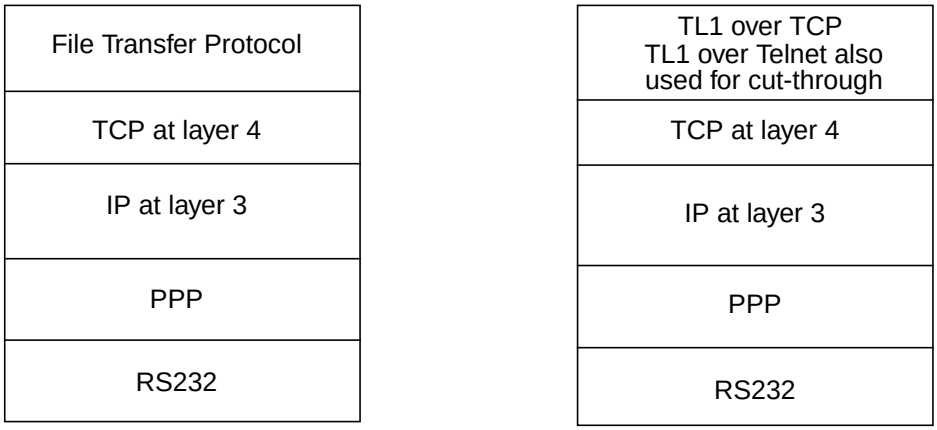

Figure A-1 COMDAC R1.4 remote access to CIT port protocol profiles

- External system LAN interface.

  LAN interface is available via the shelf connection panel (SCP) connector on the *AnyMedia* Access System Mainshelf. It provides access to an IEEE 802.3 compliant LAN through a 10BaseT connection. All communications through this interface occur over the transmission control protocol/internet protocol (TCP/IP) to the GSI or AEM. The protocol profile in the NE for this scenario is shown in Figure A-2, page A-4.

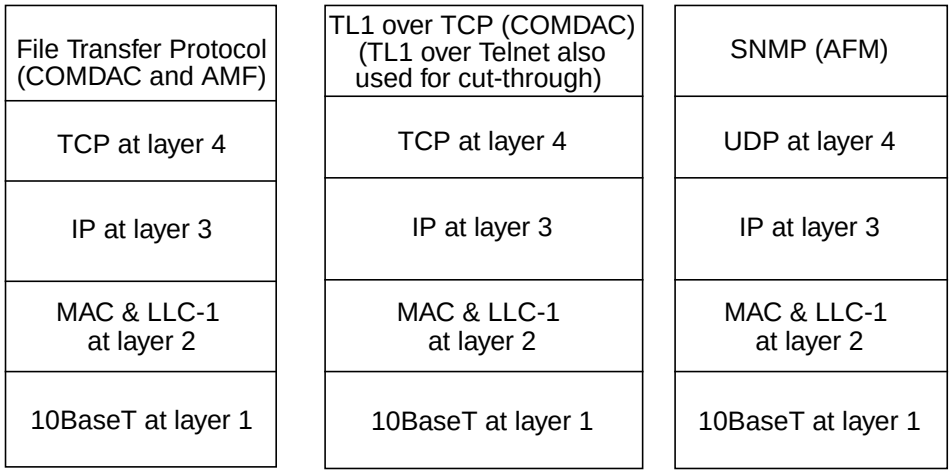
File Transfer Protocol (COMDAC and AMF)
TCP at layer 4
IP at layer 3
MAC & LLC-1 at layer 2
10BaseT at layer 1
TL1 over TCP (COMDAC) (TL1 over Telnet also used for cut-through)
TCP at layer 4
IP at layer 3
MAC & LLC-1 at layer 2
10BaseT at layer 1
SNMP (AFM)
UDP at layer 4
IP at layer 3
MAC & LLC-1 at layer 2
10BaseT at layer 1

Figure A-2 AnyMedia external LAN interface profiles

- Remote Operations Channel (ROC)

  ROC is a 64-kbps timeslot within the payload of a DS1 link bound to a feeder of the network element. The *AnyMedia* Access System provides access for a remotely located OS if it communicates via TCP. The protocol profile in the NE for this scenario is shown in Figure A-1, page A-3. This alternative can be used if no local ethernet LAN is available or the outside plant (OSP) environment is too severe for a router. It does not need a separate DCN, then it can be a cheaper solution. The protocol profile in the NE for this scenario is shown in Figure A-3.

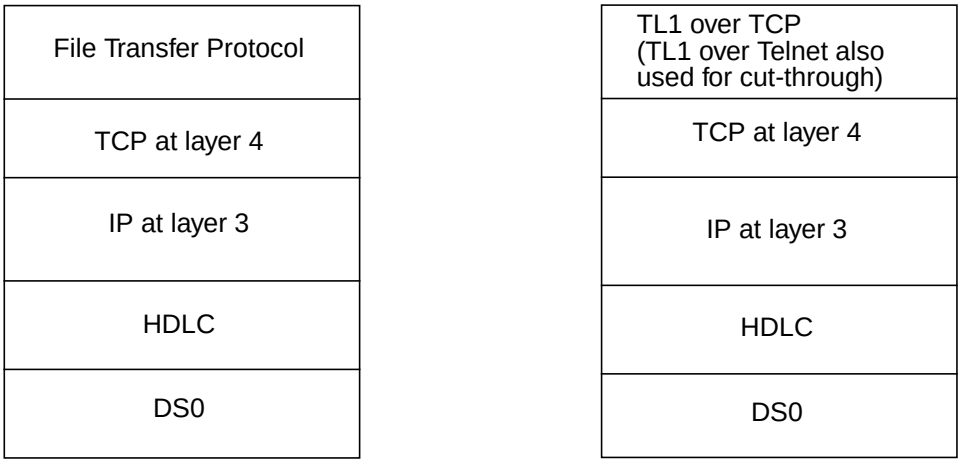

Figure A-3 COMDAC remote operations channel (ROC) protocol profiles

For establishing communication between the AEM and the NE, the NE must be minimally configured with its LAN, ROC or CIT parameters as applicable. This option is the only available, as the AnyMedia Access System does not support remote boot and remote TCP/IP configuration. The GSI can be used to provide this initial configuration of the NE using the CIT port.

A.5 AEM communication capabilities

The AEM uses for communicating management data an external system LAN interface. The protocol profile in the AEM for this scenario is shown in Figure A-4.

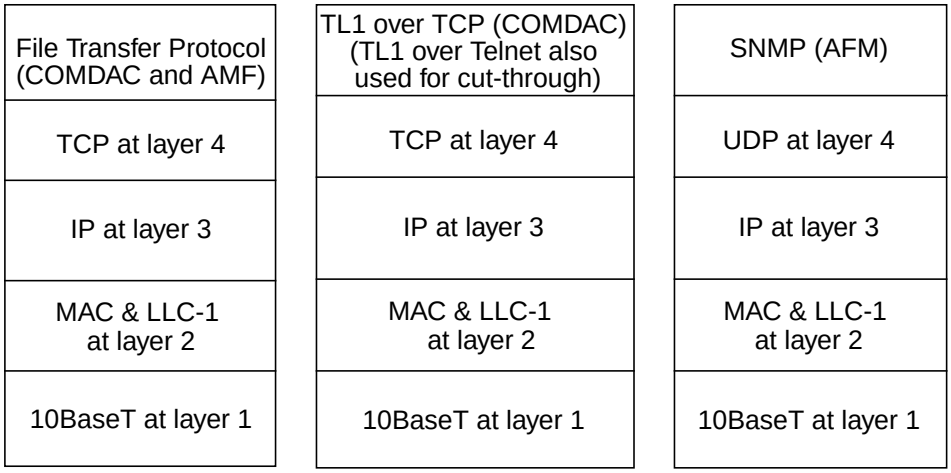
File Transfer Protocol (COMDAC and AMF)
TCP at layer 4
IP at layer 3
MAC & LLC-1 at layer 2
10BaseT at layer 1
TL1 over TCP (COMDAC) (TL1 over Telnet also used for cut-through)
TCP at layer 4
IP at layer 3
MAC & LLC-1 at layer 2
10BaseT at layer 1
SNMP (AFM)
UDP at layer 4
IP at layer 3
MAC & LLC-1 at layer 2
10BaseT at layer 1

Figure A-4 AEM protocol profiles

A.6 Recommended DCN configurations

If a data network is not yet available between the central site where the AEM is located and the remote site where the NEs are located, the following two configurations are recommended:

- ROC over semi permanent leased lines DCN, cf. Chapter A.6.1, page A-6
- Communication with remote NEs using inband ATM PVC, cf. Chapter A.6.2, page A-9.

A.6.1 ROC over semi permanent leased lines DCN

Configuration

The assumptions for this configuration are:

- The LAN-based element manager is located in the central office collocated with the Local Digital Switch (LDS).
- The NEs are located at remote locations.
- The OAM&P information (mapped in the 64 kbit/s ROCs) is transported from the AEM in the central office to the remote locations via a semi permanent leased line (SPLL) using either TR-08 or TR-303 access technologies.
- A router/bridge is used for interfacing the channelized T1 I/F to the LAN in the central office. The router/bridge performs the translation from LAN to HDLC/DS0 access via channelized T1 interfaces.
- For layer 2 the HDLC Protocol is used between 24 channel NEs and the router.
- One remote operation channel is used for communicating with each NE (64 kbit/s ROC carried on a SPLL). For managing up to 24 NEs connected to the LDS, a single T1 interface for the router/bridge is sufficient.

A.6.1.1 Router configuration

Configuration

The minimal requirements for the router/bridge for supporting this scenario are:

- Minimal WAN Interface Requirements:

  The router/bridge must have one or more channelized 1.544 Mbit/s T1 interfaces (ITU G.703/G.704). An IP address may be assigned to each time-slot or channel group.

- Minimal LAN Interface Requirements

  The router must have one or two (for cascading purposes) Ethernet (IEEE 802.3) 10BaseT ports. In case of two LAN ports, LAN-to-LAN routing is supported.

For the router/bridge the following has to be provisioned:

- T1 interface functionality (line code, framing type etc.)
- Time-slot mapping (each needed serial interface will be a channel group mapped on a time slot of the channelized T1)
- Protocols and encapsulations
- IP-addresses for IP routing (routing tables)
- Ethernet media

The initial provisioning of a router/bridge is typically performed by a VT100/ANSI terminal, connected to a RS-232C port. When the IP-address of the router is provisioned, the router may be configured via LAN (TELNET, SNMP) depending on the router/bridge used.

A.6.1.2 AnyMedia network element configuration

The ROC (over SPLL) is the management interface used to access the NE. The initial provisioning has to be done via pre-provisioning (factory settings) or a local GSI (LAN or RS-232C) because the SPLL service, carrying the remote operations channel, must be in-service to get remote access to the NE via remote operations channel.

Provisioning the ROC over SPLL

The following actions have to be made to provision the ROC over SPLL management interface:

- Provision the Local Digital Switch (LDS) that is connected to the NE shelf to associate the DS0 channel to a SPLL service.
- Provision the NE using the ENT-T0 TL1 command to indicate that the received DS0 is a 64 Kbps clear channel (gsfn=4do).
- Provision the NE using the ENT-CRS-T0 command to indicate that the received DS0 should be cross connected to the logical ROC port. Note that the remote operations port T0 cross-connection created for a TR-08 VRT will cause system bandwidth to be allocated, while for TR-303 this command is more an association function than a cross-connection. No actual cross-connection is made in TR-303 until a request to connect the logical line specified in this command is received from the LDS over the EOC data link (for semi-permanent connections).
- Provision the NE using the SET-IP command to an unique IP address.

Note that the default router address of the NE must be set to 224.0.0.2 (universal router's multicast address) so that the NE points to the router on the other side of the ROC interface.

Example of TL1 commands

The following TL1 commands are an example of ROC over SPLL configuration (for TR-303) in the NE.

```
ent-t0::v3dp-1-49::::gsfn=4do;
ent-crs-t0::v3dp-1-49,roc-1;
ent-crs-t1::ds1-1-1-1,v3fdr-1-3;
set-ip::::::shelf=135.5.78.2,defrouter=224.0.0.2,
submask=255.255.255.0
```

The "nail-up" of the DS0 channel must also be provisioned in the LDS after that the ROC over SPLL is provisioned. Once communications with the element manager is established via the ROC over SPLL, remote operations on the NE can be executed as over a connection via LAN. Also either the GSI or a standard windows FTP/TELNET can be used.

A.6.1.3 AEM server configuration

Server IP Parameters

The server on which the AEM application resides must have its IP parameters configured:

- IP address (e.g. 135.88.20.234)
- subnet mask (e.g. 255.255.240.0)

- default router (e.g. 135.88.17.1)

Configuration

In the AEM the following parameters have to be configured to be able to communicate with the NEs.

- TCP/IP configuration related to NEs
  - For every NE the AEM wants to communicate with, its IP address (e.g. 135.88.4.2) must be introduced in the AEM (provisionable with the AEM GUI via cut-through).
- Association configuration related to NEs
  - For every NE with which the AEM has to communicate, the NEs Target Identifier (TID) must be known by the AEM (provisionable with the AEM GUI via cut-through).
  - For every NE with which the AEM wants to communicate, the LOGIN and the PASSWORD information related to that NE must be introduced in the AEM. (provisionable with the AEM GUI via cut-through).

A.6.1.4 AEM client configuration

Client IP parameters

The workstation with the AEM client has the following IP parameters configured. Note that if the client is located at the same machine as the server these parameters are already configured.

- IP address (e.g. 135.88.20.230)
- subnet mask (e.g. 255.255.240.0)
- default router (e.g. 135.88.17.1)

The client workstation has to be configured as a client machine of the server workstation where the AEM server is going to run.

The 'SystemPreferences.ini' file includes the LOGTELNET, PASSTELNET and SERVER variables that have to be configured only it the user wants to open a cut-through session in the AEM client.

A.6.1.5 Local digital switch configuration

Management operations have to be performed on the LDS to create the SPLL service and associate this service to the DS0 channel which will be cross connected with the ROC. The provisioning of this DS0 channel will be static with TR-08 and dynamic with TR-303.

A separate SPLL needs to be established with every NE which shall be managed.

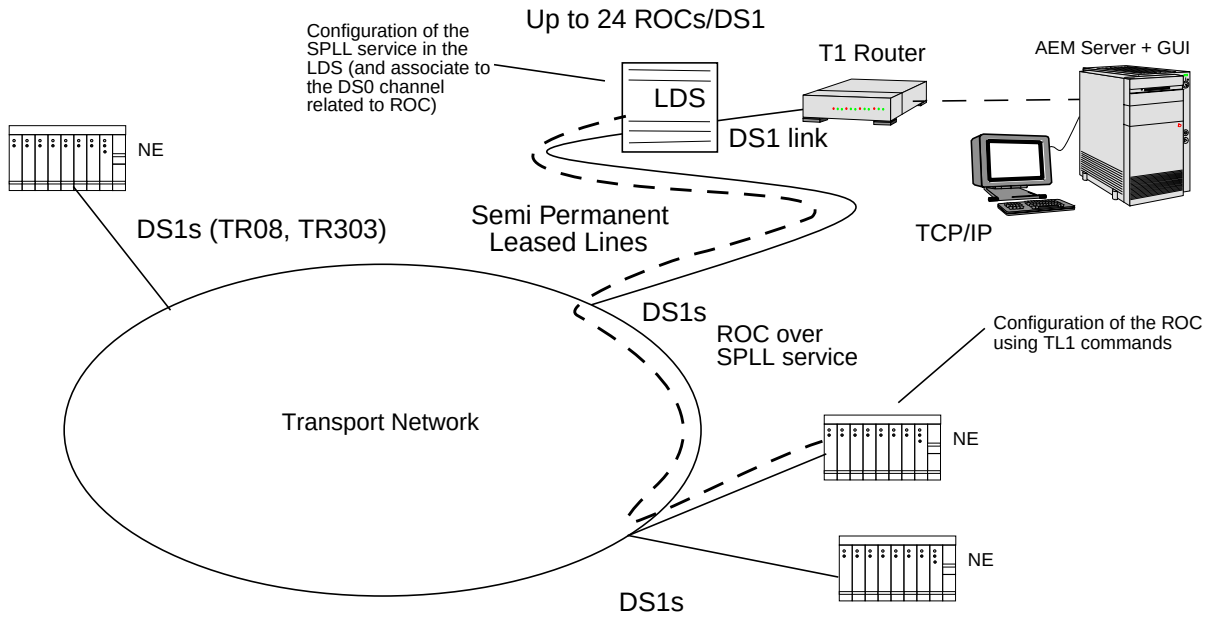

Figure A-5 ROC over semi permanent leased line for AEM

A.6.2 Communication with remote NEs using inband ATM PVC

The assumptions for this configuration are:

- There are data and telephony access technologies collocated in the same NE. Data access is orientedto data applications and is based on asynchronous transfer mode (ATM) over asymmetrical digital subscriber line (ADSL) access. The data access consists of ADSL application packs and access feeder multiplexer (AFM) control cards which make the switching between ADSL access traffic and ATM networks using DS3 interfaces (24-channel market).
- There is an ATM network between central office and remote *AnyMedia* NEs.
- In this scenario ATM permanent virtual connections (PVCs) are used to communicate telephony (TL1/FTP over TCP based) and data (SNMP over UDP and FTP over TCP based) management traffic between AEM and *AnyMedia* NEs.
- One ATM PVC will be used for every NE to be managed, this ATM PVC carries IP packets related to both COMDAC and AFM management information.
- ATM PVCs carrying management information related to one NE are originated in a LAN environment where AEM is located.

- A DCN device is needed at the Central Office to make the translation between 10BaseT/MAC&LLC1/IP and DS3/ATM PVC/AAL5/802.2 LLC/802.2 SNAP/IP interface to the ATM network. The LLC encapsulation method to be supported by that device is that described in RFC 1483, i.e. this method allows multiplexing multiple protocols over a single ATM virtual circuit. Further, this method carries connectionless network traffic over the ATM network. Note that this functionality (if available) can also be performed by the ATM switch connected by means of a LAN connection with the central office (e.g. CBX-500), in these cases there is no need of a separate ATM router at the CO.
- ATM PVC which carries IP management information is carried over an ATM network and finally they are inserted in a related NE by means of DS3 data ports, IP packets contained in the ATM PVC are extracted in the data AFM card which also support RFC 1483.
- Part of these IP packets (those with IP address of AFM) which carry BB management information are terminated in AFM.
- Part of these IP packets (those with IP address of COMDAC) which carry telephony management information are forwarded to AFM LAN port which is joined to COMDAC LAN port (located on the SCP of the *AnyMedia* Mainshelf), these IP packets will be terminated in the COMDAC.

A.6.2.1 Configuration of the router

The router at central office need to be configured. The minimal requirements for the router for supporting this scenario are:

- Minimal WAN interface requirements

  The router must have one or more ATM DS3s interfaces with the ATM network (or any other physical interface, e.g. STM-1, DS1 depending on the edge ATM switch to interface with). It is in charge of mediating from 10BaseT/ MAC&LLC1/ IP to DS3/ATM, AAL5, 802.2 LLC, 802.2 SNAP/ IP. The logical WAN interface should be compatible with that of the connected ATM switch (e.g. Support of UNI 3.1 ATM cell switching). This router must support RFC 1483 (multiprotocol over ATM encapsulation) since AFM supports it.
- Minimal LAN interface requirements

  The router must have one or two (for cascading purpose) Ethernet (IEEE 802.3) 10BaseT/100BaseT ports. In case of two LAN ports, LAN-to-LAN routing should be supported.

The configuration tasks to be performed on router are:

- Configure ATM DS3 interface
- Configure LAN interface
- Configure ATM PVCs inside the ATM DS3 interfaces
- Create routing tables for both AFM and COMDAC (e.g. those IP packets to be sent to COMDAC and AFM addresses should be routed to the IP address of the related PVC).

A.6.2.2 Configuration of *AnyMedia* Access System

A.6.2.2.1 Configuration of COMDAC

On the *AnyMedia* telephony part of NE the user must configure the local LAN port. The initial provisioning has to be done via pre-provisioning (factory settings) or a local GSI (RS-232C). To do so the user must configure the COMDAC LAN port IP address, the default router address (address of AFM LAN port) and the subnet mask of the NE local LAN port. We use TL1 commands to configure the NE as it is shown in the next example.

```
set-ip::::::shelf=135.88.4.2,defrouter=135.88.17.1,submask=255.255.240.0
```

A.6.2.2.2 Configuration of AFM

On the AFM we must configure the in-band ATM permanent virtual connection (PVC) which is carrying telephony and data management information. This ATM PVC will be terminated at AFM and IP packets contained in it will be extracted. For this PVC VPI should be 0 and VCI greater than 31. ATM PVCs may be provisioned in AFM by means of GSI via local CIT altogether with AFM IP addresses (one for DS3 interface and another one for LAN port). IP, Net Mask and Gateway addresses for AFM must be provisioned.

On the AFM we must configure a routing table (i.e. so that IP packets related to COMDAC are forwarded to the AFM LAN port and IP packets related to AFM are terminated at AFM)

The user must join AFM LAN port with COMDAC LAN port located on the SCP of the *AnyMedia* Mainshelf by means of a ethernet cross over cable.

A.6.2.3 AEM server configuration

The AEM server configuration is the same as described in Chapter A.6.1.3, page A-7.

A.6.2.4 AEM client configuration

The AEM client configuration is the same as described in Chapter A.6.1.4, page A-8.

A.6.2.5 Transport elements configuration

The ATM switches which will transport the ATM PVCs carrying the IP management traffic need to be provisioned, i.e a table must be provisioned in these switches saying that the cells from a specific VPI/VCI are related to a VPI/VCI pair in another interface. The ATM router and *AnyMedia* Access System must be attached to the ATM network by using DS3 links (for the ATM router other links may also be used, e.g. DS1/STM-1, OC-3, etc.). If the switch supports directly rfc1483 a direct LAN connection between the switch and the CO LAN environment must be provisioned, in this case there is no need of ATM router at the CO side.

If SDH ADMs are used the paths which carry the ATM information need to be provisioned.

A.6.2.6 Connection diagram

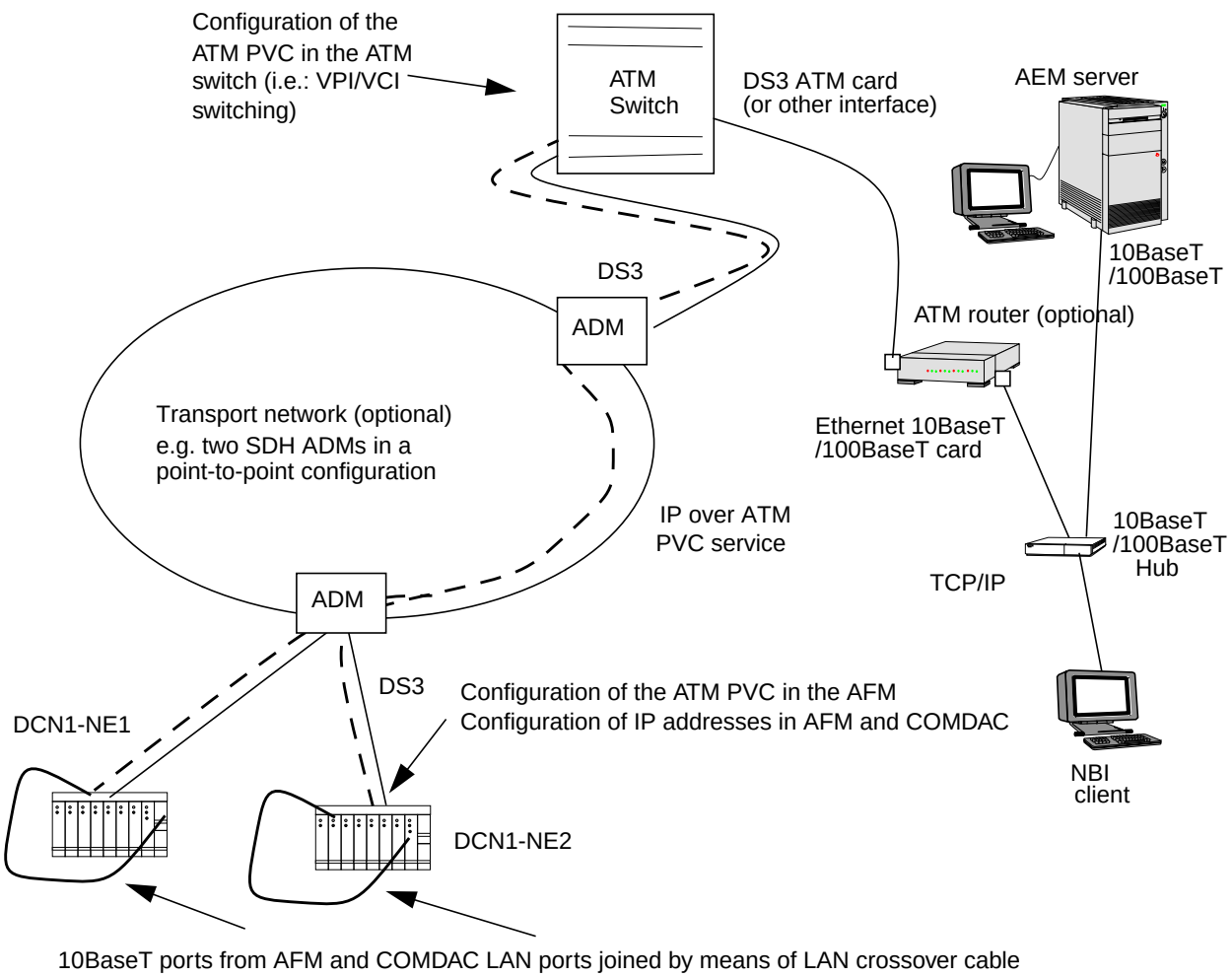
Configuration of the ATM PVC in the ATM switch (i.e.: VPI/VCI switching)
ATM Switch
DS3 ATM card (or other interface)
AEM server
10BaseT /100BaseT
DS3
ADM
ATM router (optional)
Transport network (optional) e.g. two SDH ADMs in a point-to-point configuration
Ethernet 10BaseT /100BaseT card
IP over ATM PVC service
10BaseT /100BaseT Hub
TCP/IP
ADM
DS3
Configuration of the ATM PVC in the AFM
Configuration of IP addresses in AFM and COMDAC
DCN1-NE1
NBI client
DCN1-NE2
10BaseT ports from AFM and COMDAC LAN ports joined by means of LAN crossover cable

Figure A-6 Communication with remote NEs using in-band ATM PVC

Configuration parameters

B

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Contents

Configuration parameters

B

B.1 Overview

This chapter provides information about all the configuration parameters that are used with *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7 as follows:

- an alphabetical list of all configuration parameters that are used with AEM.
- a detailed information about each parameter.

These configuration parameters are distributed in three configuration files, as follows:

- **AnyMediaEM.cfg** for variables used by the *AnyMedia* servers.
- **AnyMedia.ini** and **SystemPreferences.ini** for variables used by the GUI.

Only the configuration parameters the *AnyMedia* administrator can modify are explained in this chapter -modify these configuration variables with caution as they may adversely affect the correct operation of the application-. To modify the other configuration parameters stored in the configuration files, please contact with Lucent Technologies TCL.

B.1.1 *AnyMedia* server configuration variables

The following table provide an alphabetical list of the configuration variables for *AnyMedia* servers.

The directories can be defined either absolute or relative to the environment variable **`$ANYMEDIAPATH`**.

Table 2-1 AnyMediaEM.cfg File

Configuration management settings

Name	Description
AM.clearHour	Hour of the day in 24h format at which the removal process of the alarm database is executed every day. It is OPTIONAL. If not present, default value is taken. Possible values: 0 to 23 Default value: 1
AM.clearMinute	Minute within the AM.clearHour at which the removal process of the alarm database is executed every day. It is OPTIONAL. If not present, default value is taken. Possible values: 0 to 59 Default value: 0
AM.correlationRulesPath	AM configuration file location relative to *Anymedia* path. It contains the correlation rules needed for the reduced correlation process in the AM subsystem. It is MANDATORY. It should be present in this file. Default value: AM/cfg/CorrelationRules.cfg.
AM.minimumClearPeriod	Number of days that cleared alarms remain in the database before they are removed. It is optional. If not present, default value is taken. Possible values: 1 to *. Default value: 3.
AM.platformAlarmTablePath	AM configuration file location relative to *Anymedia* path. It contains the static information of the platform alarms. It is MANDATORY. It should be present in this file. Default value: AM/cfg/PlatformAlarmTable.cfg.
NOTE: All CM variables in this file are mandatory and must be defined here.	

Name	Description
CM.directoryNVDS	NVDS files location. This files store information in such a way as to survive indefinite periods of total power failure. The current values for all provisionable parameters are stored in the NVDS directory and hence are the parameter values that will be used on subsequent NE power-up. Default value: CM/nefiles/NVDS. NOTE: The path is relative to the *AnyMedia* installation path.
CM.directoryNVPS	NVPS files location. It keeps software program data. It resides in the NE <COMDAC> Default value: CM/nefiles/NVPS. NOTE: The path is relative to the *AnyMedia* installation path.
CM.FTPtimeOut	Time out in seconds for all FTP commands. The FTP command is aborted if there is no progress of file transfer during the interval. Possible values: 90 to 900 seconds. Default value: 300.
CM.maxTriesCounter	Maximum number of SNMP PDUs retransmissions when time out. Possible values: 0 to (upper limit not defined). Default value: 3.
Gen.directoryTemp	Temporary directory of the AEM application. Default value: tmp.
Gen.orbixTracesInEm	Orbix daemon trace level. Possible values: 0 to 2. Default value: 0
Gen.timeout	Time out in milliseconds for COBRA calls. Possible values: 0 to *. Default value: 480 000 ms.
FB.Root.NVDS_BB	Path associate to the root key used by File Browser. Default value: NVDS_BB.

Name	Description
FB.Root.NVDS_NB	Path associate to the root key used by File Browser. Default value: NVDS_NB.
FB.Root.NVPS_BB	Path associate to the root key used by File Browser. Default value: NVPS_BB.
FB.Root.NVPS_NB	Path associate to the root key used by File Browser. Default value: NVPS_NB.
FB.Root.ALARM_FILTERS	Path associate to the root key used by File Browser. Default value: ALARM_FILTERS.
NEM.association.timeSync	Indicates if the time and date in the agents has to be kept in synchronization with the time and date of the AEM. Possible values: true, false. Default value: true.
NEM.aoHandler.fullSyncInvalidTimes	Maximum number of retries of full synchronizations. Possible values: 0 to 5 times. Default value: 3.
NEM.aoHandler.queueSize	Maximum size of the event's queue. Possible values: 1 to 1000 elements. Default value: 1000.
NEM.association.heartBeatNumber	Maximum number of missing heartbeats to the NE. Possible values: 1 to 5 times. Default value: 3.
NEM.association.heartBeatTime	Time between two heartbeats to the NE. Possible values: 0 to 15 minutes. Default value: 5.
NEM.association.loopTimer	Time to wait after connection to four TCP/IP ports have been tried and failed. Possible values: 0 to 50 minutes. Default value: 5.

Name	Description
NEM.timeSync.delay	Maximal time delay in seconds when a time sync is not needed. Possible value: 0 to 30 seconds. Default value: 30
NEM.association.osContext	TL1 context used as parameter in ENT-OSAC-MAP TL1 command. Default value: TL1OTHER1
NEM.association.tl1Timeout	Time out for all TL1 commands. Possible values: 1 to 5. Default value: 4.
BAM.association.timeSync	Indicates if the time and date in the agents has to be kept in synchronization with the time and date of the AEM. Possible values: true, false. Default value: true.
BAM.association.heartBeat-Number	Maximum number of missing heartbeats to the NE. Possible values: 1 to 5 times. Default value: 3.
BAM.association.heartBeat-Time	Time between two heartbeats to the NE. Possible values: 0 to 15 minutes. Default value: 5.
BAM.association.snmpTimeout	Time out for all SNMP commands. Possible values: 1 to 5. Default value: 4.
BAM.association.snmpRetries	Maximum number of times for a SNMP re-transmission. Possible values: 1 to 10. Default value: 3.
BAM.association.nextAttempt	Time to wait after a new SNMP communication attempt. Possible values: 0 to 50 minutes. Default value: 5.
BAM.alarmSync.period	Time between periodic alarm synchronization. Possible values: 3600 to 86400 seconds. Default value: 21600.
BAM.cfgSync.period	Time between periodic config synchronization.

	Name	Description
	BAM.timeSync.delay	Maximal time delay when a time synchronization is not needed. Possible values: 0 to 30 seconds. Default values: 30.
	BAM.cfgSync.maxRetries	Maximum number of retries of full synchronizations. Possible values: 0 to 5 times. Default value: 3.
	BAM.trapHandler.queueSize	Maximum size of the trap's queue. Possible values: 1 to 1000 elements. Default value: 1000.
OAM settings	OAM.backup.archiveDirectory	Destination of the log files archived by the *AnyMedia* archive script, if it is not specified as command-line parameter. It can be a tape device. Default value: archives.
	OAM.backup.backupDirectory	Destination of the log files and data bases backed up by the *AnyMedia* backup script, if it is not specified as command-line parameter. It can be a tape device. Default value: backups.
	OAM.backup.backupLogDirectory	Location of the log files of the backup/archive/restore scripts execution. Default value: tmp.
	OAM.backup.numberOfLogFiles	Maximum number of log files (per type) allowed in the OAM.backup.backupLogDirectory. Range of values: 1 to *. Default value: 10 files per script file.
	OAM.log.directoryCurrentLogs	Default path where the restored *AnyMedia* logs will be placed from a previous archive. Default value: log.
	OAM.log.directoryRestoredLogs	Location of the *AnyMedia* log files restored from a previous backup or archive. Default value: restored.

Name	Description
OAM.log.minimumDaysKept	Number of days a log file should be kept in the system before being removed. If space is needed and the log file is still within this period, a platform alarm is raised (and the file is removed). Possible values: 1 to *. Default value: 7 days.
OAM.sysadmin.clientIdleTime	Period of inactivity after that a client is forced to log out. Possible values: 60 to *. Default value: 240 seconds.

B.1.2 *AnyMedia* client GUI configuration variables

The following table provides an alphabetical list of the configuration parameters for *AnyMedia* GUI.

Table 2-2 SystemPreferences.ini configuration file

Name	Description
Site settings	
SITE	The city or the location where the AEM is working. This value is used for printing purposes, it is mandatory at installation time.
LOC_LANG=en LOC_COUNTRY=US	Default locale of the application. These value cannot be modified.
The following variable should be used to change the timezone. That should be done only if some problems has been detected by default. In order to notify to the application that the time zone should be change the value of TZ_userDefined should be set to true. In order to set properly the time zone to be used in the AnyMedia application we have to set the following variables: TZ_rawOffset, TZ_ID, TZ_startMonth, TZ_startDay, TZ_startDayOfWeek, TZ_startTime, TZ_endMonth, TZ_endDay, TZ_endDayOfWeek, TZ_endTime.	
TZ_userDefined	Possible values: true, false Default value: false
TZ_rawOffset	Defines the difference in milliseconds between local time and UTC.

	Name	Description
	TZ_ID	The syntax necessary to define a TZ_ID is the following: GMT[+|-]hh[[:]mm]. For example, you might specify GMT+14:00 as a custom time zone ID. The time zone that is returned when you specify a custom time zone ID does not include daylight savings time, then it is necessary to use the rest of variables to set the daylight saving time for this time zone.
	TZ_startMonth	The daylight savings starting month. Month is 0-based. e.g., 0 for January.
	TZ_startDay	The daylight savings starting day-of-month.
	TZ_startDayOfWeek	The daylight savings starting day-of-week-in-month. Day of week are 1-based: 1 is SUNDAY, 2 is MONDAY and so on.
	TZ_startTime	The daylight savings starting time in local wall time, which is standard time in this case.
	TZ_endMonth	The daylight savings ending month. Month is 0-based. e.g., 0 for January.
	TZ_endDay	The daylight savings ending day-of-month.
	TZ_endDayOfWeek	The daylight savings starting day-of-week-in-month. Day of week are 1-based: 1 is SUNDAY, 2 is MONDAY and so on.
	TZ_endTime	The daylight savings ending time in local wall time, which is daylight time in this case.
User view settings	USERVIEW	Default view in User Administration and Profiling application. Possible values: users, user groups, domains or objects. Default value: users.
Alarm viewer settings	ALM_VIEW	Default view of the Alarm Viewer. Range of values: 1 to 5. Default value: 3.
	ALM_FILTER	Default alarm filter of the Alarm Viewer. Possible values: 0:Last 24 hours, 1:Critical raised alarms, 2:Raised alarms, 3:Alarm from a Host/s, 4:Critical alarms not cleared, 5:Owned acknowledge alarms, 6:All acknowledge alarms, 7:None filter/all alarms. Default value: 3.

	Name	Description
	DEFAULT_LOG_TYPE	Default Options Window of Log Viewer. Possible values: Act_TASK, Iee_TASK, Ao_TASK. Default value: Act_TASK.
Cut-through settings	LOGTELNET	Login to connect to AEM server for cut-through purposes. Default value: defined at installation time.
	PASSTELNET	Password to connect to AEM server for Cut-through purposes. Default value: defined at installation time.
	SERVER	Server host where the AEM application is running. Default value: defined at installation time.
Help settings	HELP_URL	Contains the URL where the help files are located.
	HELP_BROWSER	HELP_BROWSER Solaris Setting: this property should contain the name of browser being used (netscape in our case) the full path is not necessary. HELP_BROWSER Windows Setting: however in windows it is necessary to specify the full path where the browser is located (remember that in this case it is needed to use double back slashes). For example: C:\\Program Files\\ Netscape\\Communicator\\Program\\ netscape.exe. Default value: netscape.
Event settings	EVENT_DELAY	This is the delay applied to all events received by the GUI (except those ones managed by the System Events Distributor). That is, the delay between the GUI event reception and the event handler process. Value expressed in milliseconds. Default value: 5000.
V5 settings	V5_RADIX	This is the radix being used to display the v5 id. Default value: 10.

	Name	Description
Market settings	IS_NAR_MARKET	This variables defines if the *AnyMedia* application is being used either in the NAR market (true) or in the international market (false). Default value: true.
Groups & NEs settings	The RELEASE_MAP_X options define a list of key value pairs used to map each release-related object to the corresponding class which implements the functionality for that object. Using this mapping, several releases can be mapped to the same class, if possible, allowing for code reuse.	
	Agent related classes: RELEASE_MAP_4=BB_R112,guinemanage.AgentBB RELEASE_MAP_5=BB_R14,guinemanage.AgentBB RELEASE_MAP_6=NB_R17-RT,guinemanage.AgentNB24ch RELEASE_MAP_7=NB_R17-COT,guinemanage.AgentNB24ch	
	Shelf related classes: RELEASE_MAP_8=sh,guinemanage.NEsh RELEASE_MAP_9=subsh,guinemanage.NEsubsh	
	Pack related class: RELEASE_MAP_10=TAP100,guinemanage.NEslotTAP	

Table 2-3 AnyMedia.ini configuration file

Name	Description
LV_READLINES	Line number of server log messages read in Log Viewer. Possible values: 1 to 50. Default value: 50.

Northbound interface

C

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Contents

Northbound interface

C

C.1 Overview

This appendix provides you with information about the

- Northbound interface basics and
- Northbound interface specific TL1 messages.

C.2 Northbound interface basics

C.2.1 Northbound interface description

General

The *AnyMedia*® Element Manager - 24 Channel (AEM) R1.7 offers to any external OS a straight TL1 connection with the set of NEs in the OS's network. Using this link, any external OS with access rights to open a northbound interface session, can configure, test or monitor a set of NEs using a TL1 interface and can receive the responses to the TL1 commands and the autonomous outputs which are generated by the NE (depending on the northbound interface application type selected).

Two types of northbound interfaces

The AEM provides two different types of northbound interface applications:

- general northbound interface

  all types of autonomous messages received from the NE are send to the OS. None NE autonomous messages will be inhibited.

- alarm only northbound interface

  only alarm and environment alarm autonomous message received from the NE are sent to the OS, the AEM will inhibit the rest of NE autonomous messages (database changes, events, etc...).

Configure terminal for session

Before the telnet session for the northbound interface is opened the **TERM** variable must be set correctly. Set the **TERM** variable either to **dtterm**, **xterm** or **vt100**.

Restrictions with multiple sessions

While a northbound interface session is already open another session of a different type must not be opened for the same NE.

Avoid interference with other EM

When a northbound interface session is opened it is recommendable to send the message **ALW-MSG::vc-all:::,ALL;** to avoid that changes in the configuration of the NE introduced by another manager could interfere with our application.

Start northbound interface session

To start a northbound interface session, the OS must open a TCP/IP connection with the AnyMedia Element Manager. Then a TL1 interface, see *Command and Message Manual*, is used.

Firstly, the OS is authenticated and authorized via the ACT-USER message. The AEM opens a dedicated TL1 virtual circuit with every NE included in the domain of the external OS. When the connections are open, any TL1 command typed by the OS operator, will be sent, to the proper NE, and the responses to these commands, as well as all the available autonomous output messages (AO) will be routed to the proper OS.

Close northbound interface session

To close the northbound interface session, the external OS uses the CANC-USER TL1 message. When this message reaches the AEM, it logs-out the external OS, closes all the TCP/IP connections which are involved in this northbound interface session (both sides, northbound to the OS, and southbound to the NEs managed by the OS) and logs the end of the northbound interface link.

Maintaining authentication information

The OS will be authenticated and authorized by the AEM not by the NE. Using this mechanism, the OS will only have to send one ACT-USER TL1 message, which will be spawned by the AEM to all the NEs in the network managed by the OS. To do that, the AEM will have to maintain some information, e.g. the TIDs and IP addresses of all the NEs managed by the OS, and a UID - PID pair to open a virtual circuit on each NE. The AEM operator will be provided with the required set of script tools to maintain this information easily.

Close virtual circuits with NEs

In the same way, only one CANC-USER message, sent by the OS to the AEM, will be enough to close all the virtual circuits with the NEs, and the northbound interface session.

Routing of TL1 messages

For the routing of the TL1 messages, the NEs TID is used, and from every NE configuration table, the corresponding IP address is determinated. Incoming messages that have no TID (field empty), are sent to all connected NEs.

Messages from NEs

In case the OS will send a TL1 request message, the OS has to support as many completion responses as NEs are connected. Messages coming from the NEs (responses and autonomous output), are queued until they are complete (i.e. received) and then sent to the northbound OS. There are no guarantees about the order in which responses are sent to the OS.

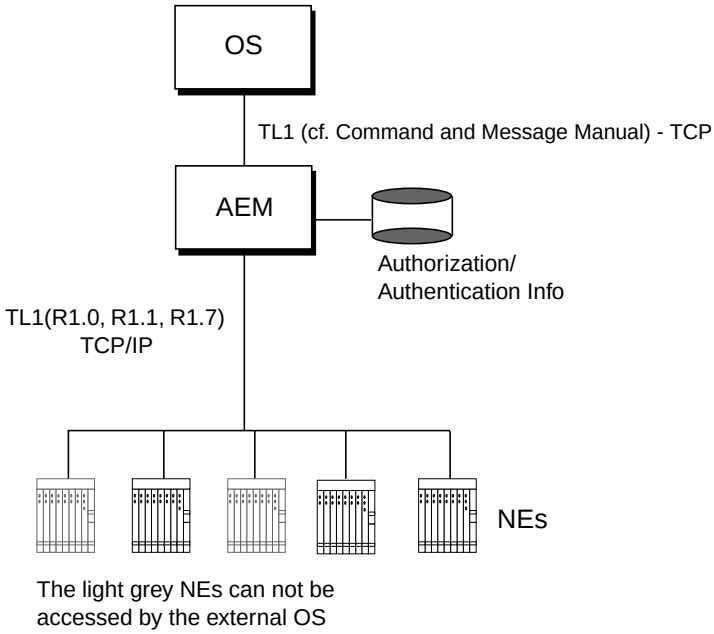

Figure C-1 Northbound interface

The number of concurrent northbound interface sessions supported by a single NE will depend on the number of available virtual circuits on the NE.

The AEM will provide the independence of the northbound interface sessions and the AEM GUI interface, so an operator using the AEM GUI, will not get to know whether a northbound interface session is running or not.

C.3 Northbound interface specific TL1 messages

Some TL1 messages feature more parameters when invoked via AEM. These TL1 messages are described in this section, namely

- REPT ALM (Report Alarm)
- RTRV-ALM (Retrieve-Alarms)
- RTRV-ALM-ENV (Retrieve-Alarm-Environment).

C.3.1 REPT ALM (Report Alarm)

C.3.1.1 Purpose

A REPT ALM (Report Alarm) message is generated autonomously by the NE to report the occurrence of an equipment, facility, or system alarm condition to the OS/AEM and CIT. An alarm condition reported via the REPT ALM message has a corresponding REPT ALM clearance message that is generated when the alarm condition clears.

Abortable	No
Privilege Code	Reports Only
GSI Confirmation Required	No
File Transfer	No
Related Autonomous Message	None

C.3.1.2 Output format

If the command request completes successfully, the following normal completion response is returned:

```
sid date time
AC atag REPT ALM AIDTYPE

"AID:NTFCNCDE,CONDTYPE,SRVEFF,OCRDAT,OCRTM:CONDDESCR"
;
```

C.3.1.3 Output format parameters

AID Access identifier

This parameter appears in the Access ID Block

Type	Access ID
Required	Yes

AID is the address of the equipment or facility for which an alarm is being reported.

Abbreviation	Meaning
ap-1-{1-16}	Application Pack
comdac-1-{1-2}	COMDAC
ctu-1	Craft/Test Unit
cu-1-{1-24}	Channel Unit

Abbreviation	Meaning
drop-1-{1-16}-{1-32}	Drop
ds1-1-{1-5}-{1-4}	DS1 narrowband port (feeder side)
ext-1-{1-2}	External DS1 Synchronization
iat-{1-32}	Integrated Access Terminal
iatfdr-{1-32}-1-1	Integrated Access Terminal
iatsp-1-{1-16}-{1-2}	Integrated Access Terminal Server Port
iods1-1-{1-5}	DS1 Circuit Pack
iods1p-1	DS1 protection pack
m2drop-1-{1-24}-{1-4}	Metallic Distrib 2 Shelf Drop
mds2-1	Metallic Distrib 2 Shelf
msc-1-{1-2}	Metallic Shelf Controller
ptu-1-{1-2}	Power Test Unit
pwrf-1-{1-2}	-48V Fast Distribution Bank
pwrm-1-{1-2}	-48V MDS2 Distribution Bank
sh-1	Shelf
telnet-{1-2}	Telnet virtual port
tr8dl-{1-20}-1	TR-008 Mode 1 Data Link
v08-{1-20}	TR-008 VRT
v303-1	GR-303 VRT
v3eoc-1-{1-2}	GR-303 Embedded Operations Channel
v3tmc-1-{1-2}	GR-303 Timeslot Management Channel
{string}[a]	NE TID (Target Identifier)

a only available via AEM

NTFCNCDE **Notification code**

This parameter appears in the Common Block

Type	List
Required	Yes

NTFCNCDE is the alarm level.

Abbreviation	Meaning
CL	Cleared Alarm
CR	Critical Alarm
MJ	Major Alarm
MN	Minor Alarm

CONDTYPE **Condition type**

This parameter appears in the Common Block

Type	List
Required	Yes

CONDTYPE is a code denoting the condition type. A message reporting the clearing of an alarm has the same condition type as the one reporting the alarm.

Abbreviation	Meaning
AIS	Alarm indication signal
BKUPMEMP	System data memory mismatch
CABLE	Cable disconnect
CPYMEMF	Copy Memory Failed
DATASYSCR	Data system failed critical
DATASYSMJ	Data system failed major
DATASYSMN	Data system failed minor
DBCRRPT	Data memory corrupt
DBMEMTRF	Data memory update abort
DIGRPF	TR-08 major shelf alarm received
EXT	External
IMPROPRMVL	Improper removal
INT	Internal hardware failure
INTRMVL	Internal Fault or Pack Missing
LOF	Loss of frame
LOS	Loss of signal
NE_ASSOC_FAILED[a]	Assoc with NE failed
POLL	Not responding to poll
PRCDERR	Procedural error
PWR	Power fault

Abbreviation	Meaning
RINGF	Ringing source input failed
SFTCRRPT	Software program corrupt
SFTERR	Software version mismatch
SWFTDWNF	Software download failed
SYNC	Synchronization input failed
SYNCOOS	System free running
T-BERL	BER exceeds threshold
TSTRELAY	Stuck test access relay
UNLATCH	Pack unlatched
YEL	Yellow Alarm

a only available via AEM

SRVEFF **Service effect**

This parameter appears in the Common Block

Type	List
Required	Yes

SRVEFF indicates the effect of the reported alarm on service.

Abbreviation	Meaning
NSA	Non Service Affecting
SA	Service Affecting

OCRDAT **Occurrence date**

This parameter appears in the Common Block

Type	Date
Required	Yes

OCRDAT indicates the date of the condition being reported and has the format YY-MM-DD (year-month-day). 70<=yy<=99 maps to 1970 through 1999 respectively; 00<=yy<=37 maps to 2000 through 2037 respectively.

OCRTM **Occurrence time**

This parameter appears in the Common Block

Type	Time
Required	Yes

OCRTM indicates the time of the condition being reported and has the format HH-MM-SS (hours-minutes-seconds).

CONDDESCR **Condition description**

Type	String
Required	Yes
Min # chars	1
Max # chars	68

This is the text description for the reported alarm condition. This information can be found in the Correlations Tables. The 68 characters included a pair of escaped quotes \"\".

AIDTYPE **Access identifier type**

Type	List
Required	Yes

MODIFIER is the message modifier to the REPT ALM message.

Abbreviation	Meaning
T1	T1
EQPT	Equipment

C.3.2 RTRV-ALM (Retrieve-Alarms)

C.3.2.1 Purpose

The RTRV-ALM (Retrieve-Alarms) command instructs the system to retrieve: (1) all currently active alarms, (2) currently active equipment alarms, (3) currently active facility alarms, or (4) currently active system level alarms from the system.

C.3.2.2 Input format

```
RTRV-ALM-[AIDTYPE]:[tid]::[ctag]::,,,,[,TMPER];
```

Abortable	Yes
Privilege Code	Reports Only
GSI Confirmation Required	No
File Transfer	No
Related Autonomous Message	None

C.3.2.3 Input format parameters

tid **Target ID**

This parameter appears in the TID Block

Type	String
Required	No
Default Type	Dynamic

Target ID is the name of the system to which the command is addressed.

ctag **Correlation tag**

This parameter appears in the CTAG Block

Type	String
Required	No
Default Type	Dynamic

This field is used to associate the command message to the response message.

TMPER **Accumulation Time Period**

This parameter appears in the CTAG Block

Type	String
Required	No
Default Type	none
min # chars	0
max # chars	0

Since the condition type is not supported, this field does not pertain and will be ignored.

AIDTYPE **Access identifier type**

Type	List
Required	No
Default Type	Fixed
Default	ALL

Access identifier type

Abbreviation	Meaning
ALL	All
T1	T1
EQPT	Equipment

C.3.2.4 Output format

If the command request completes successfully, the following normal completion response is returned:

```
sid date time
M ctag COMPLD

"AID,AIDTYPE:NTFCNCDE,CONDTYPE,SRVEFF,OCRDAT,OCRTM:CONDDESCR"
;
```

C.3.2.5 Output format parameters

AID **Access identifier**

This parameter appears in the Access ID Block

Type	Access ID
Required	Yes
Default Type	Fixed
Default	lt-all

This is the address of the equipment and/or facility for which an alarm condition is being reported.

Abbreviation	Meaning
ap-1-{1-16}	Application Pack
comdac-1-{1-2}	COMDAC
ctu-1	Craft/Test Unit
cu-1-{1-24}	Channel Unit
drop-1-{1-16}-{1-32}	Drop
ds1-1-{1-5}-{1-4}	DS1 narrowband port (feeder side)
ext-1-{1-2}	External DS1 Synchronization
iat-{1-32}	Integrated Access Terminal
iatfdr-{1-32}-1-1	Integrated Access Terminal
iatsp-1-{1-16}-{1-2}	Integrated Access Terminal Server Port
iods1-1-{1-5}	DS1 Circuit Pack
iods1p-1	DS1 protection pack
m2drop-1-{1-24}-{1-4}	Metallic Distrib 2 Shelf Drop
mds2-1	Metallic Distrib 2 Shelf
msc-1-{1-2}	Metallic Shelf Controller
ptu-1-{1-2}	Power Test Unit
pwrf-1-{1-2}	-48V Fast Distribution Bank
pwrm-1-{1-2}	-48V MDS2 Distribution Bank
sh-1	Shelf
telnet-{1-2}	Telnet virtual port
tr8dl-{1-20}-1	TR-008 Mode 1 Data Link
v08-{1-20}	TR-008 VRT
v303-1	GR-303 VRT

Abbreviation	Meaning
v3eoc-1-{1-2}	GR-303 Embedded Operations Channel
v3tmc-1-{1-2}	GR-303 Timeslot Management Channel
{string}[a]	NE TID (Target identifier)

a only available via AEM

AIDTYPE **Access identifier type**

This parameter appears in the Access ID Block

Type List

Required Yes

Abbreviation	Meaning
T1	T1
EQPT	Equipment

NTFCNCDE **Notification code**

This parameter appears in the Common Block

Type List

Required Yes

This is notification code associated with a single alarm condition.

Abbreviation	Meaning
CR	Critical alarm
MJ	Major alarm
MN	Minor alarm

CONDTYPE **Condition type**

This parameter appears in the Common Block

Type List

Required Yes

Abbreviation	Meaning
AIS	Alarm indication signal
BKUPMEMP	System data memory mismatch
CABLE	Cable disconnect
CPYMEMF	Copy Memory Failed
DATASYSCR	Data system failed critical
DATASYSMJ	Data system failed major
DATASYSMN	Data system failed minor
DBCRRPT	Data memory corrupt
DBMEMTRF	Data memory update abort
DIGRPF	TR-08 major shelf alarm received
EXT	External
IMPROPRMVL	Improper removal
INT	Internal hardware failure
INTRMVL	Internal Fault or Pack Missing
LOF	Loss of frame
LOS	Loss of signal
NE_ASSOC_FAILED[a]	Assoc with NE failed
POLL	Not responding to poll
PRCDERR	Procedural error
PWR	Power fault
RINGF	Ringing source input failed
SFTCRRPT	Software program corrupt
SFTERR	Software version mismatch
SWFTDWNF	Software download failed
SYNC	Synchronization input failed
SYNCOOS	System free running
T-BERL	BER exceeds threshold
TSTRELAY	Stuck Test Access Relay
UNLATCH	Pack unlatched
YEL	Yellow Alarm

a only available via AEM

SRVEFF **Service effect**

This parameter appears in the Common Block

Type	List
Required	Yes

This indicates the reported alarm condition is service-effecting or non-service effecting.

Abbreviation	Meaning
NSA	Non service affecting
SA	Service affecting

OCRDAT **Occurrence date**

This parameter appears in the Common Block

Type	Date
Required	Yes

This indicates the date of the condition being reported and has the format YY-MM-DD (year-month-day). 70<=yy<=99 maps to 1970 through 1999 respectively; 00<=yy<=37 maps to 2000 through 2037 respectively.

OCRTM **Occurrence time**

This parameter appears in the Common Block

Type	Time
Required	Yes

This indicates the time of the condition being reported and has the format hours:minutes:seconds.

CONDDESCR **Condition description**

Type	String
Required	Yes
Min # chars	1
Max # chars	68

This is the text description for the reported alarm condition. This information can be found in the Correlations Tables. The 68 characters included a pair of escaped quotes \"\".

C.3.2.6 Generic error responses

Code	Definition	Reason for code
CLOS[a]	NE Connection Not Available	Connection with the <NE TID> is not available
IITA	Input, Invalid Target Identifier.	TID does not match with SID, has unallowed characters, or string is too long.
IICT	Input, Invalid Correlation Tag.	Incorrect CTAG.
ICNV	Input, Command, Not Valid.	The command verb or a modifier is invalid (not recognizable by the system).
PICC	Privilege, Illegal Command Code	Command not supported at this interface

a only available via AEM

C.3.3 RTRV-ALM-ENV (Retrieve-Alarm-Environment)

C.3.3.1 Purpose

The RTRV-ALM-ENV (Retrieve-Alarm-Environment) command instructs the system to retrieve all currently active environment alarms.

C.3.3.2 Input format

```
RTRV-ALM-ENV:[tid]::[ctag]::[,ALMTYPE];
```

Abortable	Yes
Privilege Code	Reports Only
GSI Confirmation Required	No
File Transfer	No
Related Autonomous Message	None

C.3.3.3 Input format parameters

tid **Target ID**

This parameter appears in the TID Block

Type	String
Required	No
Default Type	Dynamic

Target ID is the name of the system to which the command is addressed.

ctag **Correlation tag**

This parameter appears in the CTAG Block

Type	String
Required	No
Default Type	Dynamic

This field is used to associate the command message to the response message.

ALMTYPE **Alarm Type**

This parameter appears in the Common Block

Type	String
Required	No
Default Type	none
min # chars	0
max # chars	0

Alarm type is not supported in this release and will be ignored.

C.3.3.4 Output format

If the command request completes successfully, the following normal completion response is returned:

```
sid date time
M ctag COMPLD

"AID:NTFCNCDE,ALMTYPE,OCRDAT,OCRTM,ALMMSG"
;
```

C.3.3.5 Output format parameters

AID **Access identifier**

This parameter appears in the Access ID Block

Type	Access ID
Required	Yes

AID is the access identifier of the contact closure.

Abbreviation	Meaning
mc-1-{1-8}	Miscellaneous Contact Closure

NTFCNCDE **Notification code**

This parameter appears in the Common Block

Type	List
Required	Yes

NTFCNCDE is the alarm level.

Abbreviation	Meaning
CR	Critical Alarm
MJ	Major Alarm
MN	Minor Alarm

ALMTYPE **Alarm type**

This parameter appears in the Common Block

Type	List
Required	Yes

Alarm Type. Use alarm type instead of condition type for RTRV-ALM-ENV.

Abbreviation	Meaning
ACF	AC Loss (AC Input Power Failure)
BD	Battery on Discharge
FAN	Fan Unit Failed
MISC1	Miscellaneous 1
MISC2	Miscellaneous 2
MISC3	Miscellaneous 3
MISC4	Miscellaneous 4
MISC5	Miscellaneous 5
MISC6	Miscellaneous 6
MISC7	Miscellaneous 7
MISC8	Miscellaneous 8
MJF	Fuse Major
MNF	Fuse Minor
NONE	None
PMJ	Power Major
PMN	Power Minor
PWR	One of the -48V power feeds failed
TAMPER	Intrusion (Door Open)

OCRDAT **Occurrence date**

This parameter appears in the Common Block

Type	Date
Required	Yes

This indicates the date of the condition being reported and has the format YY-MM-DD (year-month-day). 70<=yy<=99 maps to 1970 through 1999 respectively; 00<=yy<=37 maps to 2000 through 2037 respectively.

OCRTM **Occurrence time**

This parameter appears in the Common Block

Type	Time
Required	Yes

This indicates the time of the condition being reported and has the format HH:MM:SS (hours:minutes:seconds).

ALMMSG **Alarm message**

This parameter appears in the Common Block

Type	String
Required	Yes
Min # chars	1
Max # chars	40

Alarm Message. Use alarm message instead of condition description. Refer to the Correlation Tables for the default environmental alarm conditions. The 40 characters include a pair of escaped quotes \"\".

C.3.3.6 Generic error responses

Code	Definition	Reason for code
CLOS[a]	NE Connection Not Available	Connection with the <NE TID> is not available
IITA	Input, Invalid Target Identifier.	TID does not match with SID, has unallowed characters, or string is too long.
IICT	Input, Invalid Correlation Tag.	Incorrect CTAG.
ICNV	Input, Command, Not Valid.	The command verb or a modifier is invalid (not recognizable by the system).
PICC	Privilege, Illegal Command Code	Command not supported at this interface

a only available via AEM

Abbreviations

A

ACO
Alarm Cut-off

ADSL
Asymmetrical Digital Subscriber Line

AEM
AnyMedia™ Access System Element Manager

AFM
Access Feeder Multiplexer

AID
Access Identifier

AMAS
AnyMedia Access System

ANR
Abnormal

ANSI
American National Standards Institute

AO
Autonomous Output Message

AP
Application Pack

APOG
Applications, Planning, and Ordering Guide

ASCII
American Standard Code for Information Interchange

ATM
Asynchronous Transfer Mode

ATU
Alarm and Test Unit

AUTO
Automatic

B

BAL
Balance

BB
Backus-Naur Form

BCL
Bank Controller Link

BITS
Building Integrated Timing Supply

BRA
Basic Rate Access

C

CD
Compact Disk

CDE
Common Desktop Environment

CFL
Customer Feature List

CIT
Craft Interface Terminal

CIU
Communication Interface Unit

CLEI
Code assigned by Bellcore

CMIP
Common Management Information Protoco

CO
Central Office

COMDAC
Common Dada and Control

COT
Central Office Terminal

CPE
Customer Premises Equipment

CR
Critical (alarm severity)

CRV
Call Reference Value

CSA
Customer Serving Area

CTAG
Correlation Tag

CTRL
Control

CTU
Craft Test Unit

CU
Channel Unit

D

DB
Database

DC
Direct Current

DCN
Data Communication Network

DDS
Digital Data System

DFL
Default

DID
Direct Inward Dial

DMT
Discrete Multitone

DPT
Dial Pulse Termination

E

ECI
(Code that corresponds to the bar-coded label on the faceplate of the plug-in)

EIA
Electronic Industries Association

EM
Element Manager

EM-AM
Element Manager-*AnyMedia*

ENT
Enter

EOC
Embedded Operations Channel

EQPT
Equipment

ESF
Extended Super Frame

ETO
Equalized Transmission Only

EVT
Event

F

FAF
Facility Failure

FEF
Family of Equipment Failure

FDL
Facility Data Link

FLT
Fault

FS
SuperFrame with Datalink

ESF
Extended Superframe

FTP
File Transfer Protocol

FXO
Foreign Exchange Office

G

GS
Ground Start

GSF
General Service Function

GSFN
Generic Signalling Function

GSI
Graphical System Interface

GUI
Graphical User Interface

H

HBER
High Bit Error Ratio

HDD
Hard Disk Drive

HDLC
High Level Data Link Control

HP
Hewlett Packard

HW
Hardware

I

IAT
Integrated Access Terminal

IATS
Integrated Access Terminal Server

ICC
InterChangeability Code

ICMS
Integrated Configuration Management System

ID
Identifier

IEEE
Institute of Electrical and Electronics Engineers

IIOP
Internet Interoperability Protocol

IN
Information (alarm severity)

INA
Integrated Network Access

IP
Internet Protocol

IS
In Service

ISP
Internet Service Providers

ISDN
Integrated Services Digital Network

ITU
International Telecommunication Union

L

LAN
Local Area Network

LBER
Low Bit Error Ratio

LDS
Logical Digital Switch

LED
Light Emitting Diode

LIC
License

LLN
Logical Line Number

LPBK
Loop Back

LS
Loop Start

M

MDS
Metallic Distribution Server

MDSU
Metallic Distribution Server Unit

MEA
Mismatch of Equipment and Attributes

MHz
Megahertz

MJ
Major (alarm severity)

MLT
Mechanized Loop Testing

MM
Module Manager

MN
Minor (alarm severity)

MON
Degraded Signal

MR
Modification Request

MSC
Metallic Shelf Controller

N

NB
Narrow Band

NE
Network Element

NEM
Network Element Management / AnyMedia EM subsystem

NIC
Network Interface Card

NM
Network Management

NMA
Network Monitoring and Analysis

NMS
Network Management System

NVDS
Nonvolatile Data Storage

NVPS
Nonvolatile Program Storage

O

OAM
Operations, Administration and Maintenance

OCU
Office Channel Unit

OMG
Object Management Group

OODB
Object Oriented Database

OOS
Out Of Service

OPS
Operations System

ORB
Object Request Broker

OS
Operation System

P

PBX
Private Branch Exchange

PC
Personal Computer

PCM
Pulse Code Modulation

PGTC
Pair Gain Test Controller

PID
Password Identifier

PLN
Physical Line Number

PLR
Pulse Link Repeater

POTS
Plain Old Telephone Service

PPP
Point to Point Protocol

PSTN
Public Switched Telephone Network

PT
Power Test

PTU
Power Test Unit

PVC
Permanent Virtual Channels

R

RAM
Random Access Memory

RCV
Receive

RDLD
Red Lined

REPT
Report

ROC
Remote Operations Channel

ROM
Read Only Memory

RT
Romote Terminal

RTLP
Receive Transmission Level Point

RTU
Remote Test Unit

2RVO
2-Wire Loop Reverse Battery, Originate

S

SCC
Secondary Channel

SCEC
Secondary Channel Error Correction

SDEE
Supported Entity Exists

SDH
Synchronous Digital Hierarchy

SGE
Supported Entity Outage

SL
Slope

SLC
Subscriber Loop Carrier

SNMP
Simple Network Management Protocol

SPLL
Semi Permanent Leased Line

SW
Software

T

TA
Terminal Adapter
Test Area

TAP
Test Access Path

TCA
Threshold Crossing Alert

TCP
Transmission Control Protocol

TID
Target Id

TL1
Transaction Language 1

TLP
Transmission Level Point

TM
Timeslot Management

TMC
Timeslot Management Channel

TMN
Telecommunication Management Network

TNM
Total Network Management

TO
Transmission Only

TRMT
Transmit Attenuator Parameter

TS
Test

TS
Timeslot

TTLP
Transmit Transmission Level Point

TTMT
Tandem Transmit Attenuator Parameter

U

UART
Universal Asynchronous Receiver/Transmitter

UAS
Unassigned

UCC
Universal Communication Channel

UEQ
Unequipped

UI
User Interface

UID
User Id

UNI
User-Network Interface

UPS
Uninterruptable Power Supply

USP
Universal Serial Bus

UX
Unix

V

VB
Virtual Bank

VC
Virtual Connection

VCI
Virtual Channel Identifier

VF
Voice Frequency

VFDE
Voice Frequency Data Enhancement

VPI
Virtual Path Identifier

VRT
Virtual Remote Terminal

W

WAN
Wide Area Network

X

XO
Crystal Oscillator

Y

YEL
Yellow Alarm

Z

ZCS
Zero Code Suppression

ZS
Zero Suppression

Glossary

10Base T
This is a physical interface used for high speed Ethernet connection. It uses twisted pair cables.

A

a-wire
One of the wires of the subscriber line. Sometimes it is called the tip wire.

AEM-NB
AnyMedia Access System Element Manager for Narrowband Services. It may be also named simply AEM-NB in some parts of the document.

Alarm
Any condition that needs operator attention, since it may impact the normal operations of any system under operator responsibility (e.g. Element Manager, Network Element).

AMS
Alarm Management Subsystem.

***AnyMedia* Access System**
This is also referred to as the Network Element or just the NE.

AnyMedia NE
AnyMedia Network Element for Narrow Band Services. It is the Network Element to which the DCN defined in this document is related. Also known as FAST or AMAS.

AO
Autonomous output; reports generated by the NEs.

Application
Group of one or more modules that offer related functionality.

Applicatios Pack (AP)
This is a circuit pack which provides the line-side interface functionality for POTS, SPOTS, ISDN or special service circuits. Each AP handles 24 or 32 lines (POTS, SPOTS, COIN and special services) or 16 lines (ISDN). There can be up to 16 APs in an AnyMedia Access System shelf.

Archive
Process of copying file systems to removable media (such as tape) and deleting the original files once they have been backed up.

AUDIT Trail
A subset of all log messages. A record showing who has accessed an Anymedia EM and what operation was performed during a given period of time.

B

b-wire
One of the wires of the subscriber line. Sometimes it is called the ring wire.

Backup
Process of copying file systems to removable media (such as tape) to safeguard against loss, damage, or corruption.

BB
Broad Band.

Blinking Alarm
An alarm which is continuously changing its status: raised, clear, raised, clear ...

Bridge
A network layer device that passes packets between two or more network segments that use the same data link communications protocol (OSI layer 2). The network segments appear as one segment to protocol levels higher than the data link layer. The bridge recognizes with the help of the MAC address which LAN component is connected at which port of the bridge. Data packets are only transferred over the bridge if the participant is at another port of the bridge. With a bridge, data traffic can be kept from a certain part of a LAN.

Built-in Self Test (BIST)
This is a procedure executed by each plug-in circuit pack either after power-up or on demand. The task is to check the functions of the hardware.

Burst Load
Load that can occur in certain well-known circumstances, where response times are no longer guaranteed, but queues handle excess traffic. After removing the causes of the burst load, and a certain settling time, normal operation is resumed. During burst load there is a graceful degradation, no loss of information, only a queueing occurs to defer the load to a later moment.

Busy Hour Load
Maximum load that is expected to occur in real life that must be handled with normal response times.

C

Call Reference Value (CRV)
This is a numeric value used to identify a logical line on a TR-303 Virtual Remote Terminal (VRT) in messages exchanged between the HDT and the TR-303 switch when setting up and tearing down individual calls. For TR-303 VRTs, the CRV is identical to the last field in the AID for a logical line, e.g.,104 is the CRV for the logical line having AID v3dp-1-104. CRVs are numbered between 1 and 2048. A maximum of 672 provisioned logical lines are supported by the *AnyMedia* Access System R1.2. A CRV can be uniquely associated with a single Distribution Port by setting up a T0 cross-connection between that port and the logical line specified by the CRV.

Cross Connection

Several types of cross connections are present in the *AnyMedia* Access System:

- **T1 cross-connections** provide links between physical DS1 feeder ports and the logical feeder ports of the VRTs and INA Virtual Banks (VB). They are created and deleted using the TL1 commands ENT-CRS-T1 and DLT-CRS-T1. The creation of a T1 cross-connection acts as a trigger within the NE to instantiate the associated VRT or VB.
- **T0 cross-connections** provide links between the logical ports of a VRT or an INA VB and the physical distribution ports of the NE. They are created and deleted by the TL1 commands ENT-CRS-T0 and DLT-CRS-T0.
- Finally, the undifferentiated term **cross connection** describes an actual bandwidth assignment within the system's TSI fabric. Such bandwidth assignments are administered dynamically by the TR-303 TMC, they are administered semi-permanently by the TR-303 EOC, and they are created automatically by the NE in response to provisioning activities on TR-08 VRTs and INA VBs.

Circuit

This refers to the devices and functions built on or provided by an AP for one port. In some documents this is also called facility. The subscriber line is not included.

Client

An entity that initiates requests to a server. For the AnyMedia Access System a client could be a PC with a GUI interface, a telnet session or an OS (like the AEM-NB).

Client Application

A group of one or more user modules that offer related functionality.

Client Host

A machine where one or more user modules are installed.

Common Data and Control Pack (COMDAC)

This performs the main bandwidth management and control functions of the system.

Configuration Management

This consists of a set of functions for controlling the network elements, including initialization, parameter setting, starting and stopping and collecting information about the NE configuration.

Controlled Objects

An entity defined via type and value. Where type is defined as NE for AEM-NB R1.0, but later when unbundled it requires the ability to configure type as VRT for the 24-channel product. Value will identify one specific managed NE or VRT Interface.

CIT: Craft Interface Terminal

A local RS232 connection on the AnyMedia access system to which a PC GUI can be connected.

D

Date

This refers to the day, month, and year and represents a calendar function that needs to include a calculation for leap years and a capability of determining the day of the week from the date, and must be Y2K compliant.

DCN

Data Communications Network; the communication media and interconnected devices used to exchange management information between the AEM-NB, the NEs and other OSs.

Defaults

These are the parameter values built into the NE when it is shipped from the factory. (Default values are restored upon execution of an *INIT SYS* command.)

Device Driver
A program that controls a specific device, such as a cartridge tape (DAT).

Distribution Port
The circuitry that provides narrowband access (i.e., up to the 1.544 Mbps DS1 rate) to a single network interface over one (2- or 4-wire) metallic facility and converts between the format seen by this network interface (e.g., analog voice-frequency, ISDN U-interface, etc.) and the internal format (i.e., 4-Mbps timeslots). Distribution Ports are contained in Application Packs / Channel Units for the *AnyMedia* Access System. A maximum of 32 Distribution Ports are supported on POTS/COIN Application Packs (APs) and a maximum of 16 Distribution Ports are supported on ISDN APs.

Download
The process of moving information from a server to a client at the request of a client according to client/server paradigm. Expected applications of this capability are database retrievals.

Drop
This comprises the wire to the customer and customer premises equipment (CPE). In some documents this is also called equipment.

DS1 ports
DS1 circuits are used to provide the AnyMedia Access System shelf virtual remote terminal (VRT) or INA Virtual Bank feeder facilities and are physically located on the IO_DS1 circuit packs in the NE shelf.

DU
Development Unit.

E

EAS Element Access Server
This is a CORBA server developed by Lumos Technologies which provides an interface between TL1 messages and CORBA methods.

EM Application
A group of one or more modules that offers related functionality.

EM Domain
An assigned collection of Controlled Objects.

EM Task
This represents a subset of the management functions supported by EM applications.

EM User
An entity defined via login name that can be assigned at least to an EM user group.

EM User Group
A logical group of EM users enabled to access one or more “domains”. Permissions to access domains, applications and tasks are administered on an EM user group basis.

Embedded Operations Channel (EOC)
A duplicated DS0 data link dedicated for exchange operations messages between the LDS and RDT.

F

Fault Case
For some faults (e.g. DCN failure), normal working conditions need to be re-established within certain time limits. These are fault cases that are taken into account.

Fault Management
For detecting, displaying, storing, filtering and routing fault/alarm data.

Feeder DS1 Ports
These are the DS1 circuits that are used to provide virtual remote terminals or INA virtual bank feeder facilities and are provided by IO_DS1 circuit packs in the *AnyMedia* Access System. The DS1 port numbers are included as part of the AIDs for these feeder DS1 ports.

Forced Switch
This refers to an Element Manager-initiated switch command that instructs the NE to perform a switch no matter what the conditions of the protection unit (COMDAC and IO_DS1 circuit packs only) are.

Full Backup
This copies a complete file system or directory.

G

Generic Signaling Function (GSFN)
This defines the signaling interface for a provisioned distribution port. It is part of the T0 object data associated with each port. Typical values for the GSFN are 2LS (2-wire loop start) and 2RV0 (2-wire loop reverse battery, originating side).

Global Program
This defines the information presentation to the user according to the user's preferred language and customs. A global program is one that has been internationalized and can be localized.

GSI
This is an intelligent terminal which may be a laptop PC that supports Graphical User Interface (GUI) software and the TL1 protocol interface to the AnyMedia Access System.

GSI-NB
The Graphical System Interface for narrowband services. This is a Windows 95-based PC which uses TL1 commands for the management of AnyMedia Network Elements.

GUI
The Graphical User Interface of the *AnyMedia* Element Manager System.

H

Host
A machine where one or more modules are installed.

Hub or Multiport Repeaters
This have 8, 12, 16 or more ports. With their help multiple devices with 10BASE-T interface can be connected to a single LAN. They have at least one additional port for connecting an additional segment of a LAN.

I

Incremental Backup
This copies new files and files that have changed since a previous backup. The incremental backups are usually given a dump level which determines which files are backed up. A certain level incremental backup will save all the new or changed files since the last backup with a lower level.

Inhibit Switch
This refers to an Element Manager-initiated switch command that instructs the NE to inhibit a side switch irrespective of the conditions of the active unit (COMDAC and IO_DS1 circuit packs only).

Internationalization
This is the process of isolating the language- and customs-dependent code in a computer program from the language-independent code. The term internationalization is often abbreviated as *i18n*.

IO/DS1 Pack (IO_DS1)
This provides four DS1 interfaces to accommodate telephony via standard TR-08 mode, TR-303 and INA network interfaces.

IO_DS1 Circuit Packs
Each circuit pack contains four feeder DS1 port circuits together with the circuitry needed to interface with DS1 signals (metallic feeder).

IP Addresses
These are distributed according to the worldwide or local configuration. The IP address is used in ISO layer 3. A LAN contains tables for making an assignment between MAC address and IP address.

L

Level 1 Applications
The minimum set of server applications that have to run together to provide the minimum functionality of the AnyMedia NB EM. These applications must exist before the Level 2 Application can be started. If this group is shut down the AEM-NB is shut down.

Level 2 Applications
Server applications that can be started up and shut down individually without affecting the functioning of other applications.

Line Test
Also called drop test. This checks for open circuits, short circuits, leakages to ground, foreign voltages, or other faults on the subscriber line that connects an AP port circuit to the CPE. The results are used to detect broken or bad quality wires even before the customer realizes a lack of quality.

LL/PLL Permanent Leased Lines
A service in which resources are used permanently for the transmission of data between two points. The switch is not responsible for setting up this service.

Locale
This is a geographic or political region that shares the same language and customs. In this document, a locale is also used to refer to the definition of the subset of a user's information technology environment that depends on language and cultural conventions.

Local Digital Switch (LDS)
This is a switching machine that terminates a TR-303 VRT. An example of an LDS is the Lucent 5ESS® switch.

Localization
This is the process of adapting a program for use in a specific locale.

LOG File
This is the file used for listing all actions that have occurred in a system. This information is generated and recorded concurrently and sequentially as transactions and events are processed in the system.

Logical DS0
The descriptor used in this document to refer to parameters affecting a DS0 (64-kbps) service or facility (TR-303 logical line DS0).

Logical DS1
The descriptor used in this document to refer to parameters affecting a DS1 (1.544-Mbps) service or facility (TR-303 logical feeder DS1).

Logical Feeder DS1 Numbers
These are the identifiers (1 to 28, for the TR-303 VRT) of the VRT feeder DS1s that are used by the real-time call processing software of the TR-303 Local Digital Switch (LDS) and in communicating with the VRT (over the TMC and/or EOC) about these feeder DS1s. The *AnyMedia* Access System provides only 20 physical feeder DS1 ports, so only a subset of the logical feeder DS1s can be in service.

Logical Line
This is a logical customer termination provided by the NE on either a TR-303/TR-08 VRT or an INA VB.

Logical Line Number (LLN)
This is the Access IDentifier (AID) used externally by the Element Manager to identify uniquely a VRT or INA Virtual Bank distribution-side logical drop.

M

MAC Address
This is a 6-byte hardware address, which identifies a unique participant worldwide in an Ethernet LAN. A MAC address is used in OSI layer 2.

Manual (normal) Switch
This refers to an Element Manager-initiated switch command that instructs the NE to perform a switch only if the protection unit (COMDAC and IO_DS1 circuit packs only) is in service and not faulty.

Migration
This refers to converting an NE from one software release to another by installing a different software release.

Module
An executable installed on a Host.

N

NE
AnyMedia Access System Network Element.

NEM
Network Element Management Subsystem.

Non-Volatile Data Storage (NVDS)
This refers to a capability of the AnyMedia Access System to store information in such a way as to survive indefinite periods of total power failure. The current values for all provisionable parameters are stored in the NVDS and hence are the parameter values that will be used on subsequent NE power-up.

Non-Volatile Program Storage (NVPS)
This keeps software program data. It resides in the COMDAC.

Normal Hour Load
The average load expected during the lifetime of the system.

O

Off-line Backups
These are backups performed automatically via any scheduling mechanisms, e.g. cron file.

On-line Backups
These are backups performed on user demand.

Operator
This refers to the *AnyMedia* Element Manager users.

Operator Mode
Testing initiated by staff from the EM using the NE-integrated capabilities. These tests can last some time, e.g., some measurements can be executed several times during a test session. The results in this mode usually are values (e.g. resistance, voltage, ...) and pass/fail decisions.

Overload
The load that causes the system to take drastic measures to ensure its integrity. During overload normal system function is disrupted and certain inputs (the ones causing the overload) are ignored. After clearing the overload situation, the system is left in asynchronous state for those inputs that generated the overload. Re-synchronization of this input retrieves synchronization.

OS
This is any operations system or Element Manager connected to the AnyMedia Access System Element Manager by some means of communication. For the AnyMedia Element Manager R1.0 the communication method is TCP/IP.

P

Password (PID)
This is always associated with a login UID. PID is a case-sensitive string containing 6 to 10 alphabetic, numeric and symbolic characters, where at least two characters are non-alphabetic and one is symbolic.

PCM Highway
The COMDAC pack is connected to each AP by the PCM highway, which consists of two 4.096-Mbps serial links, a 4.096-MHz clock and an 8-kHz sync signal. The AnyMedia Access System uses two PCM highways between the COMDAC, the IO_DS1s and each of the 16 AP slots.

Performance Management
For receiving, detecting, time stamping, analyzing, displaying and storing performance data.

Plain Old Telephone Service (POTS)
The conversional 2-wire analog subscriber service.

Platform
The hardware on which any AnyMedia EM module, server or client, is running.

Platform Alarm
This is an alarm related to the *AnyMedia* Element Manager application or its hardware/software platform. It usually refers to an Element Manager function or hardware/software platform object.

Port
This is circuitry built on an AP to provide an interface for subscribers. Note that more than one port can be housed on an AP, e.g. the LPZ100 provides 32 Z-ports.

Port Test
Also called circuit test. Verifies the ability of an AP port to provide proper transmission and signaling. It is the testing of the port hardware. The functions of the port test rather depend on the hardware function of the circuit (e.g. POTS, pulse metering, ISDN, ...). These tests are performed on each AP using part of their self-test capabilities.

R

RDT
This refers to the physical Remote Digital Terminal. A Remote Digital Terminal is a physical section of the NE that interfaces to the LDS at DS1 rate.

Response Time
The real elapsed time between detectable start of an action and its completion.

Restore
The process of copying backup files from removable media to a working directory, replacing the original files which could have been damaged.

ROC (Remote Operations Channel)
The bearer channel that conveys management information for a remote system (AnyMedia NE). The ROC is intended to be used when the system is installed at locations where no local Ethernet LAN and no separate network (e.g., X.25) exists.

Router
A network layer device that forwards packets from one network to another based on network layer information (OSI layer 3). Data packets are only transferred through the router if the participant is connected to another port of the router. With a router, data traffic can be kept from certain parts of a LAN. A router is more powerful than a bridge, it reduces the traffic on a LAN more than a bridge, because the IP address is evaluated for traffic control.

S

Security Management
This restricts access based upon the establishment of log-in procedures and an associated set of passwords. Screen locks are used as well.

User access is based upon domain partitioning. Controls the access to the data and capabilities inherent within a fixed partition of the network, including unbundling.

Server
A network element that waits for requests from clients to perform specific tasks. This is the function performed by the *AnyMedia* Access System.

Server Application
This is a set of server processes that perform a certain function.

Server Host
This is the machine where the system server modules are installed.

Server Module
This is the module that provides a subset of the system services.

Service
This is a piece of functionality provided by a server module.

ServiceState (of an object or entity)
This represents the current availability status of an associated resource or service in the NE from the management point of view (e.g., memory administration, maintenance).

Session
This is the active communication link between a client (in the context of this document the client will be the AEM-NB) and a server (in the context of this document the server will be the AnyMedia Access System for Narrow Band).

Side Switching
This refers to the operation of deactivating the active core entity and activating the standby core entity (COMDAC and IO_DS1 circuit packs).

Software Download
The transport of the information required to upgrade/update a given NE's generic program.

SPLL Semi Permanent Leased Lines
A service in which resources are used permanently for the transmission of data between two points. The switch is responsible for setting up this service.

System
AnyMedia-EM software. It provides a set of services allowing an operator to manage the AnyMedia NE.

System Failure
Any problem that prevents the EM system from continuing to work.

T

T0
This is the descriptor used for the TL1 interface to refer to parameters concerning a DS0 (64 kbps) service or facility.

T1
This is the descriptor used for the TL1 interface to refer to parameters concerning a DS1 (1.544 Mbps) service or facility.

TAS (Terminal Access Server)
This adapts local area networks (LAN) to wide area networks (WAN). TASs have the ability to integrate remote network elements in a local network. TASs support different LAN protocols (e.g. Ethernet) and WAN protocols (e.g. PPP).

TCA (Threshold Crossing Alert)
A crossing of a parameter threshold that is generally considered to be a transient condition.

TELNET
This ia a remote terminal interface protocol which allows remote login capability into a system on a network from any other node on that network that is also running TELNET. TELNET is a TCP/IP application.

Test Access Path (TAP)
There are up to two TAPs, one consisting of two pairs (TAP-B) and the other of six pairs (TAP-A), both providing internal and external metallic test access to the circuits.

Test Session
This is the procedure including all necessary functions to test a subscriber. This includes the setup of the test path as well as the release of the test equipment. The test session runs in the NE.

Time
This represents a 24-hour clock function.

Timeslot Management Channel (TMC)
This is a duplicated DS0 data link that a TR-303 VRT and Local Digital Switch (LDS) use to exchange connection control information with each other as they set up and tear down DS0 paths through the system on a per-call basis.

TL1 (Transaction Language 1)
This is a bellcore standard message language. It is the primary means of operating and maintaining the V5DLC system. A TL1 message session supports bi-directional message transmission and when a TL1 link is established, the system can initiate autonomous messages to monitor alarms and changes in system status.

TR303 VRT (TR303 Virtual Remote Terminal)
This refers to the logical portion of the NE that supports a single TR303 interface acting as a TR303 RDT. Only one TR303 VRT can be supported in NE R1.2.

U

Upgrade
Is a type of migration where the software release is changed from an earlier release to a later release.

Upload
The process of moving information from a client to a server at the request of a client according to client/server paradigm. Intended applications of this capability are software updates and restoring databases.

User
The operator who will use the EM to provision, maintain and monitor the AnyMedia Access System.

User Identifier (UID)
This is a unique user login identifier. This string is required and cannot be null. Grouping of UID string values for this command is not allowed. The valid UID value is a 3 to 10 case-sensitive alphanumeric character string.

User Module
A module that provides an interface to the users or to other external systems to the AnyMedia EM functionality.

V

VB
Virtual Bank. This is the entity that groups a feeder and various drops for permanent leased line services in a similar way to the VRTs for switched traffic.

W

Workload or Load
A mix of actions and their frequencies from all possible input points that need processing in some way in the system.

Z

Z-port
A Z-port is circuitry built on a POTS AP to provide a Z interface for analog subscribers. Note that more than one Z-port is housed on an *AnyMedia* POTS AP, e.g. the LPZ100 provides 32 Z-ports.

Z-port (for transmission only)
This is a Z-interface normally used for services other than telephony (e.g. data transmission). This type of Z-interface does not support DC feeding and does not support out-band signaling. This interface can support Analog Leased Line (ALL) service.

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